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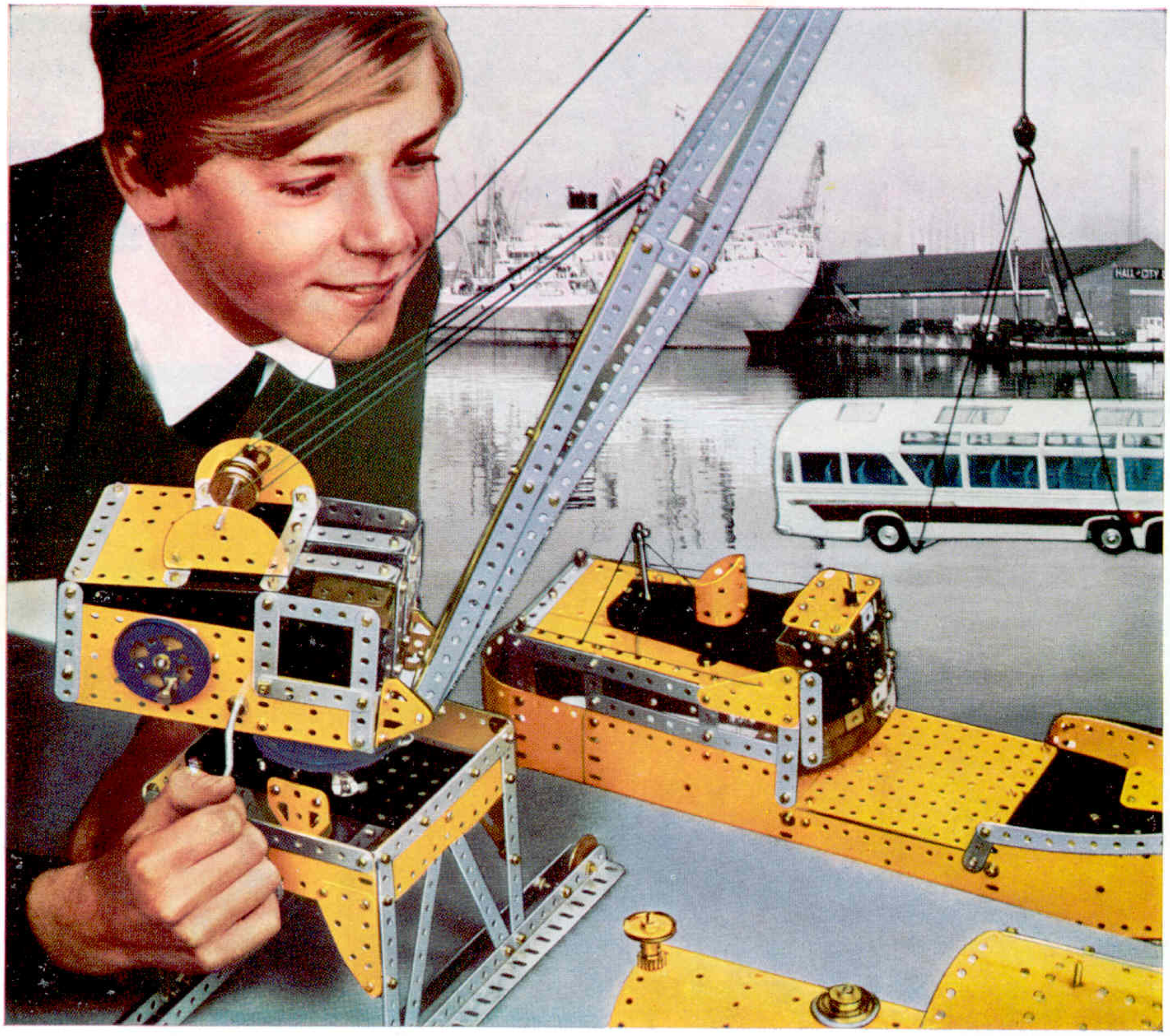


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1965

IN THIS ISSUE

- Colin Chapman's Amazing Story
- Deltics on the East Coast Route



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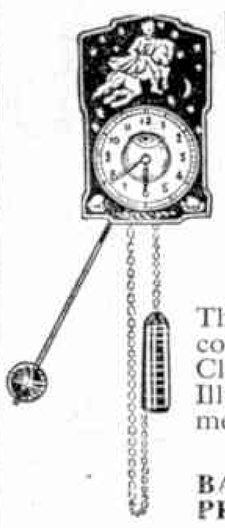
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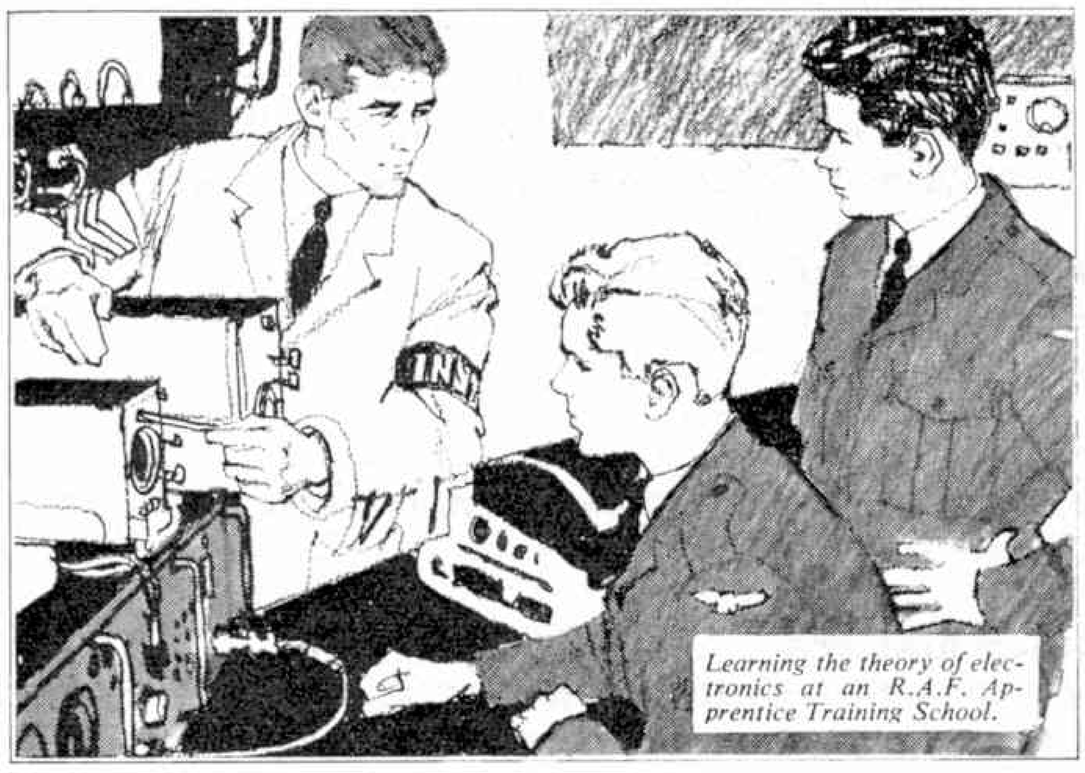
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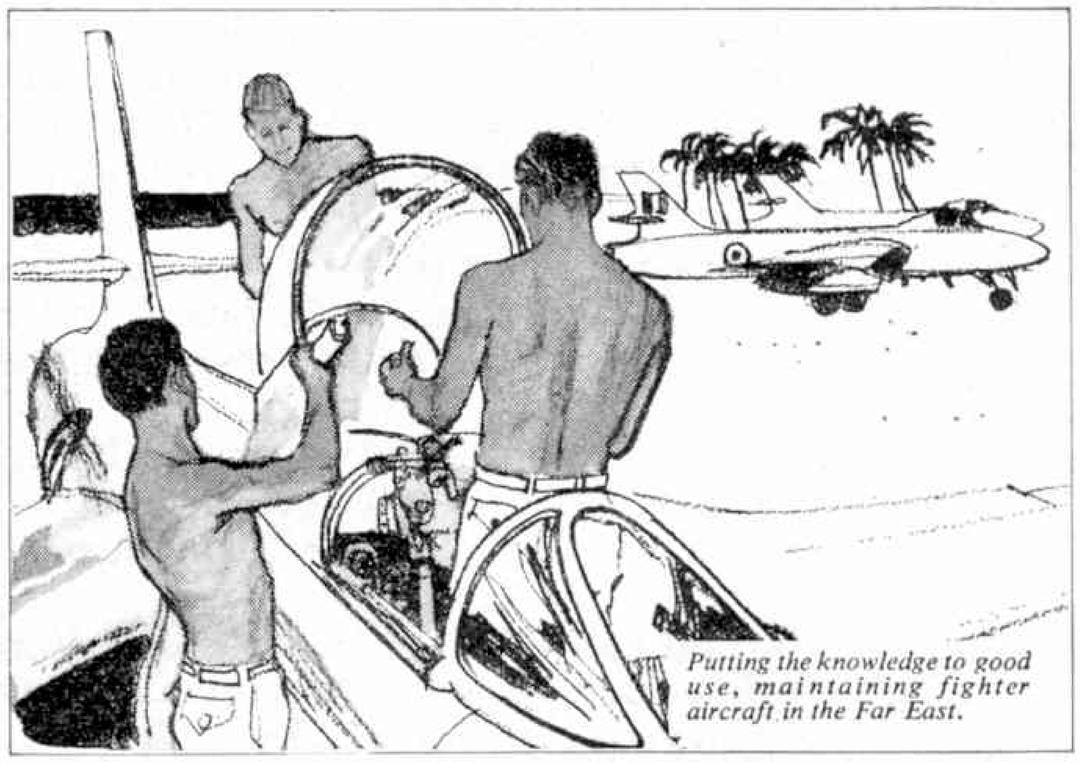


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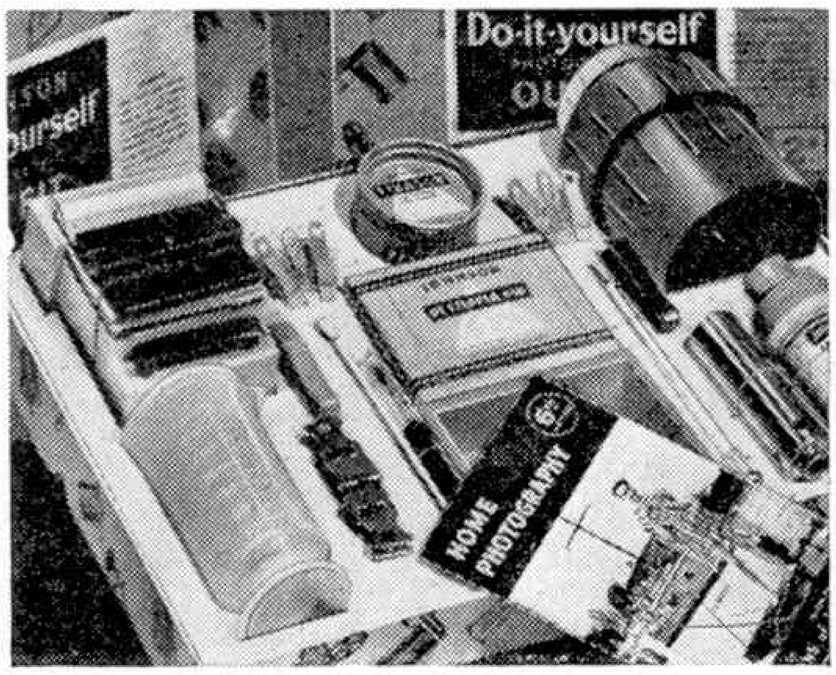
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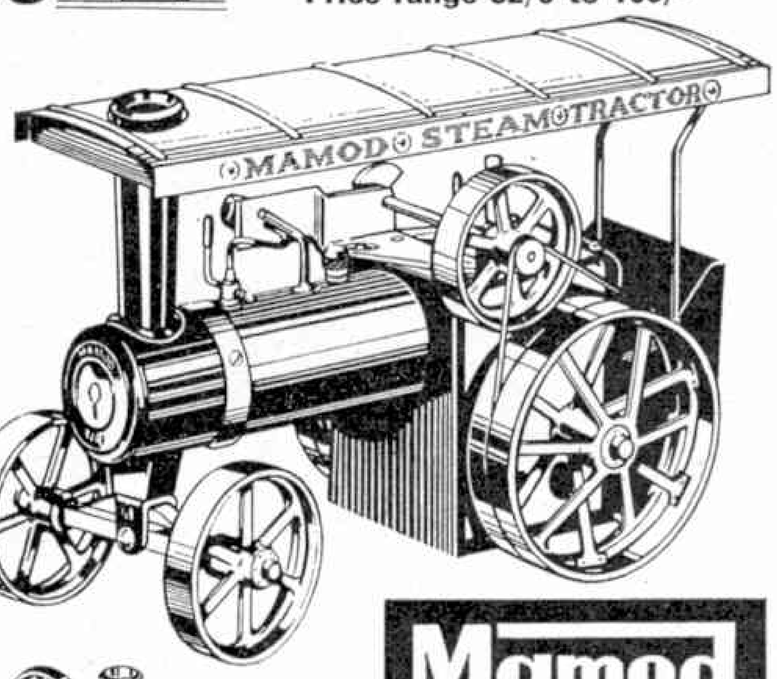
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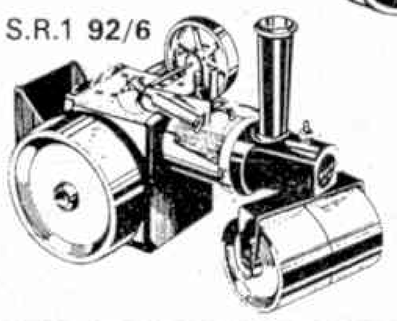
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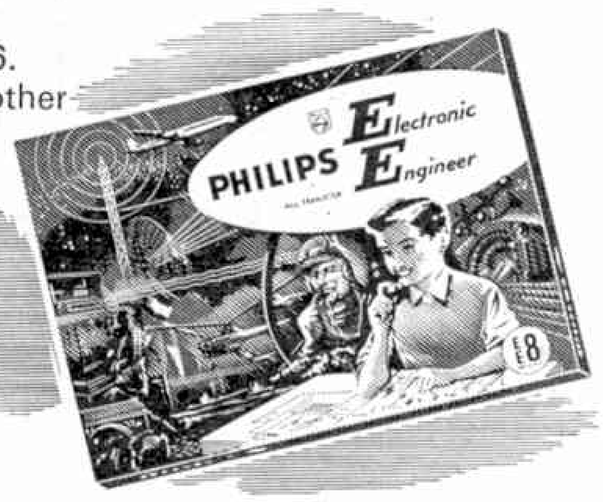
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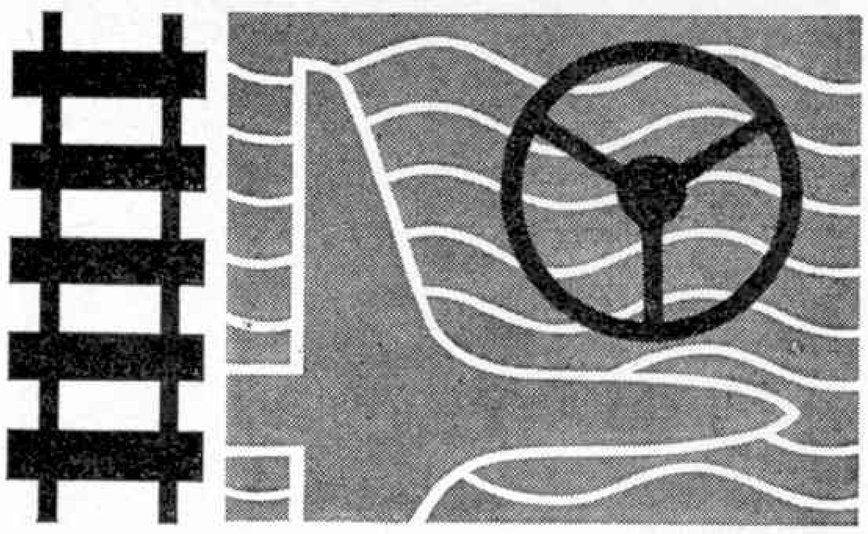
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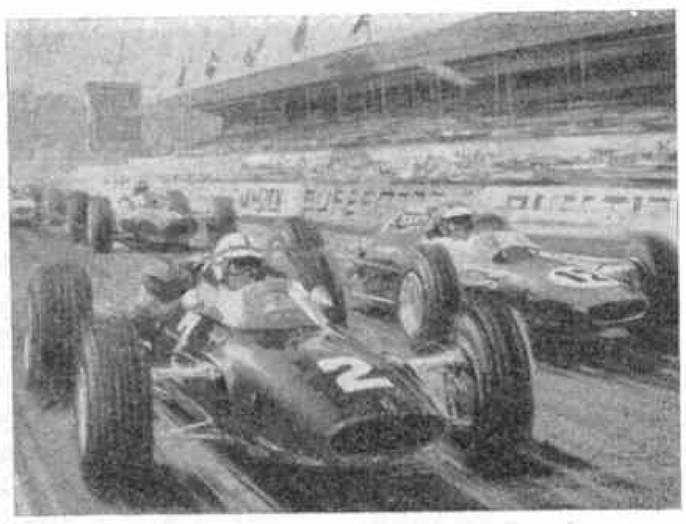
meccano magazine
THE PRACTICAL BOY'S HOBBIES MAGAZINE

September 1965 · Vol. 50 · No. 9 · Monthly

AEROMODELLING □ RADIO □ ELECTRONICS □ CAMPING □ CYCLING □ STAMPS □ FISHING

Editor D. McHard; **Design** R. S. Sodhi; K. I. Ramsey; **Advertisement Manager** A. D. B. Johnson; **Head Office** Thomas Skinner & Co. (Publishers) Ltd., St. Alphage House, Fore Street, London, E.C.2. Phone: NATional 4050. Grams: Desollar, London, E.C.2; **New York** 111 Broadway, New York City, U.S.A.; **Ottawa** Suite 35, 75 Sparks Street, Ottawa, Ontario. © *Meccano Limited 1965*

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The cover picture is a fine original by Michael Turner based on the Italian Grand Prix at Monza.

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Welcome new readers!

FIRSTLY may I extend a welcome to all new readers of our magazine.

I hope you like the many different articles which you will find in this issue. Incidentally we shall be glad to hear comments or suggestions from you, so if you have any, put them in a letter and send them off to us.

Again this month we give you the opportunity of winning a free Dinky Toy. The competition entry form is on page 18 and all you have to do is guess what model it is and send the form off to us. The names of the 50 winners will then be published in the October issue and they will be expected to write in and claim their prize.

There are two further services which I would like to draw your attention to. If you would like to have any further information about products advertised in the magazine, there is a special form on page 19 enabling you to apply for this. Simply put a tick against the name of the advertisers concerned and we will forward on your name and address. This will save you lots of postage. Secondly, if you have anything to sell or if you are looking for some special item, you yourself can advertise in the Sales/Wants/Swops column. The appropriate form is found on page 19.

Finally, the National Model Show is taking place from 24th to 28th August at the New Horticultural Hall in London. This promises to be one of the best model exhibitions ever held and we hope lots of you will make the effort to go, and if you do, don't forget to come and see us. We shall be on Stand 24.

The Editor

Next month's issue contains the first of three super model railway features

Special offer coupon for visitors to National Model Show.

Racing round-up: Special supplement on model cars in the centre of this issue.

The East Coast Run

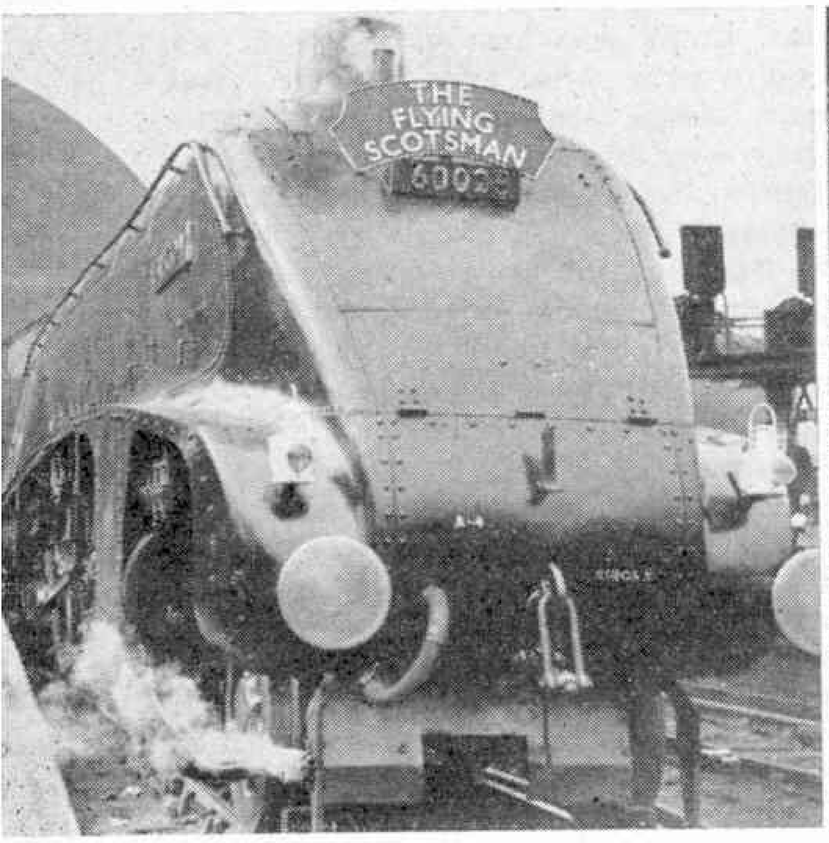
By Mike Rickett

THE main line on which many anglo-Scottish services from King's Cross to Edinburgh are run, is noted for the many spectacular locomotive performances that have occurred along its 335¼ mile length. The East Coast route to Scotland is also a most interesting one because of the many locations along its route that have historic connections, and also of its association with the Stockton and Darlington Railway, the first public railway which opened on the 27th September 1825.

The route has recently been the scene of many changes, including the speeding up of journeys and also improvements in track. Trains on the Eastern Region section of the East Coast route can now travel at 100 m.p.h. along the 21 mile stretch of track between Cadwell, north of Hitchin, to south of Offord. Two other sections of line permit the running of speeds approaching 100 m.p.h.: the seventeen mile section between Peterborough and Grantham, and the twelve miles between Grantham and Newark. In addition to this, a speed limit of 90 m.p.h. is in force on many other sections of the route.

Since 1862 the East Coast route has been associated with a certain morning Scottish express which left King's Cross at 10 o'clock. This is of course the famous 'Flying Scotsman' which since that date has left King's Cross Station at exactly the same time, except for a short period in 1916 when it ran half an hour earlier. Strange to say, the name 'Flying Scotsman' was not officially recognised until 1923 when the London and North Eastern Railway first designated it by that name in its official timetables. When the train first appeared, it was described as a 'special Scotch Express', and carried a through portion for Sheffield and Manchester which was detached at Retford. There was also a halt at York Station from 2.25 to 2.55 p.m. to allow passengers to eat a rather hurried meal. The journey from King's Cross to Edinburgh in those days took 10½ hours, and was no doubt a rather gruelling experience. The train carried when it first appeared, first class passengers only, but in 1887, as a result of competition from the West Coast Companies, the decision was taken to admit third class passengers also. This cut throat competition between the East and West Coast Companies eventually resulted in the famous 'Railway Race to the North' and in particular, the run to Edinburgh of 1888, made by the 'Flying Scotsman'. The time taken by the East Coast train was 7 hours 26¾ minutes including a 26½ minute stop at York. The competition between the East and West Coast Companies with the resultant 'races' continued until 1895 when the 'Race to







Above left: "Falcon" about to leave King's Cross on the Centenary of the Great Northern Railway, 1962. Right: Deltic Class locomotives are used today, Note the fibreglass crest

Aberdeen' resulted in an agreement to preserve the time of 8¼ hours. This agreement remained in force until May 1932 in the face of superior motive power—from the stirling 8 ft. single locomotives, to the tremendously powerful Gresley Pacifics.

Increased speed

The prestige of 'The Flying Scotsman' was greatly increased in May 1928 when it was scheduled to cover the 393 miles to Edinburgh without a stop, thereby creating a world record. This non-stop run was achieved by the use of a corridor tender on the locomotive allowing the two engine crews on the train to change places half way. By 1939 the 'Flying Scotsman' had become one of the most formidable trains in Great Britain, for the overall time of 7 hours 20 minutes between King's Cross and Edinburgh included a run over the 105 miles from King's Cross to Grantham in 110 minutes and the 82·7 miles to York in 83 minutes, making a total of 3¼ hours from London to York. The load of the train, gradually became heavier and the locomotives did very hard work observing the timings set out above. The fourteen coach trains of 1938 weighed no less than 504 tons, and on leaving London, the formation from the engine backwards was a third class brake, a composite for Glasgow, composite for Perth, three third class, a full length buffet car, triple restaurant car set, a first class for Edinburgh, a composite, third class, and third brake for Aberdeen.

Throughout the 1939-45 war the 'Flying Scotsman' retained its unbroken 10 a.m. departure time and also its name, although its time was lengthened to 8 hours 55 minutes. Vast loads were carried on occasions, in the region of 800 tons, with seldom more than one Pacific Locomotive at the front. In more recent times, the train is hauled by a type 5 Diesel electric 'Deltic' Locomotive of 3,300 h.p. The train still leaves King's Cross at 10 a.m. and the schedule for the journey has now been reduced to six hours.

A wide variety of locomotives have hauled the 'Flying Scotsman' including, as mentioned before, the Stirling '8 footers' and the Ivatt 'Atlantics' of the Great Northern Railway. In pre-war days however, the Gresley A3 and A4 Pacific locomotives were inevitably used and the most famous of all these engines to work the 'Scotsman', the Gresley A4 Pacific No. 60022 'Mallard' on July 3, 1938 broke the world speed record for a team locomotive, on reaching a speed of 126 m.p.h. whilst travelling down Stoke bank between Grantham and Peterborough. This locomotive is now deservedly preserved in the British Transport Museum at Clapham.

Since 1958 many improvements have been made to the East Coast route to permit the running of faster trains on tighter schedules, one of which is the new one million pound dive-under at Retford to carry the Eastern Region lines from Grimsby to Sheffield, underneath the East Coast main line. A very large proportion of the five million tons of coal that will be needed by the Central Electricity Generating Board at West Burton will have to pass over this crossing at Retford and the new dive-under scheme will avoid considerable congestion and also allow a higher concentration of trains to travel through the junction.

A new marshalling yard, one of the most modern of its kind in Britain, has already been constructed at Tyne, and is specially designed to deal with complete train loads. The new yard supersedes the many smaller yards inherited by the North Eastern Region of British Railways.

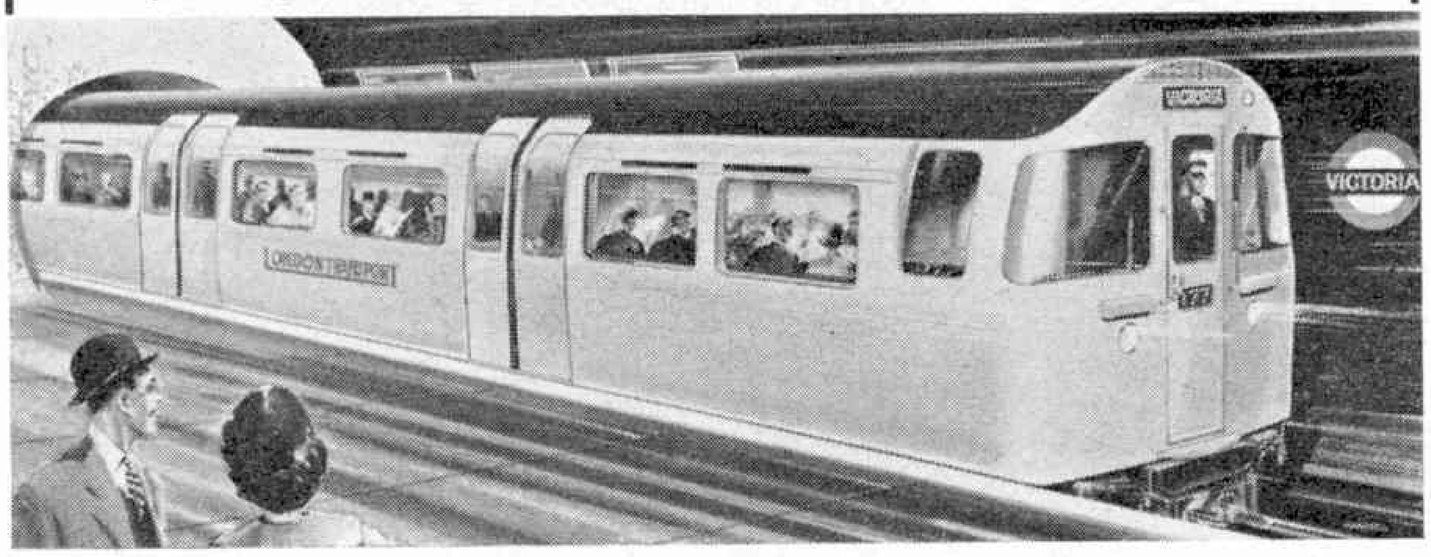
The new look

Other modernisation projects include a new signal box at Shafthome Junction, York Station, Tollerton and Pilmore. Colourlight signalling and continuous track circuiting has been provided from Darlington Parkgate, to Ferryhill and a new signal box at Newcastle has been built. Track and signalling improvements and also the substitution of steam by diesel locomotives has allowed progressive reduction to be made in the running times of the East Coast Expresses. Newcastle is now within four hours of King's Cross and Darlington within 3 hours 22 mins.

Gateshead, the principal North Eastern Region main line motive power depot, has six 'Deltic's' and eight Sultzer/Brush locomotives, although main line workings are arranged between all the Regions concerned with the East Coast route. The Gateshead depot has been extensively rebuilt for the maintaining and servicing of diesel locomotives, and its present allocation is 119 main line and 27 shunting locomotives. York Locomotive Depot has also been equipped for servicing and maintaining diesel locomotives and in addition, a new diesel multiple unit depot has been built at Darlington.

RAILWAY NOTES
Victoria line trains ordered

The trains for the new Victoria line which is now nearing completion, are on order, and details concerning them were recently supplied by London Transport. They have 'wrap-round' windscreens to the driver's cab, double-width double-glazed windows in the passenger sections, and the sliding doors have glass high enough for standing passengers to see station names without stooping, The trains are generally similar to the new Piccadilly and Central line tube trains and in common with other recently supplied rolling stock for the underground railway system, the trains will be produced in unpainted aluminium alloy, continuing the 'silver' look now familiar to Londoners.



by PITMAN

RACEWAY ACCESSORIES

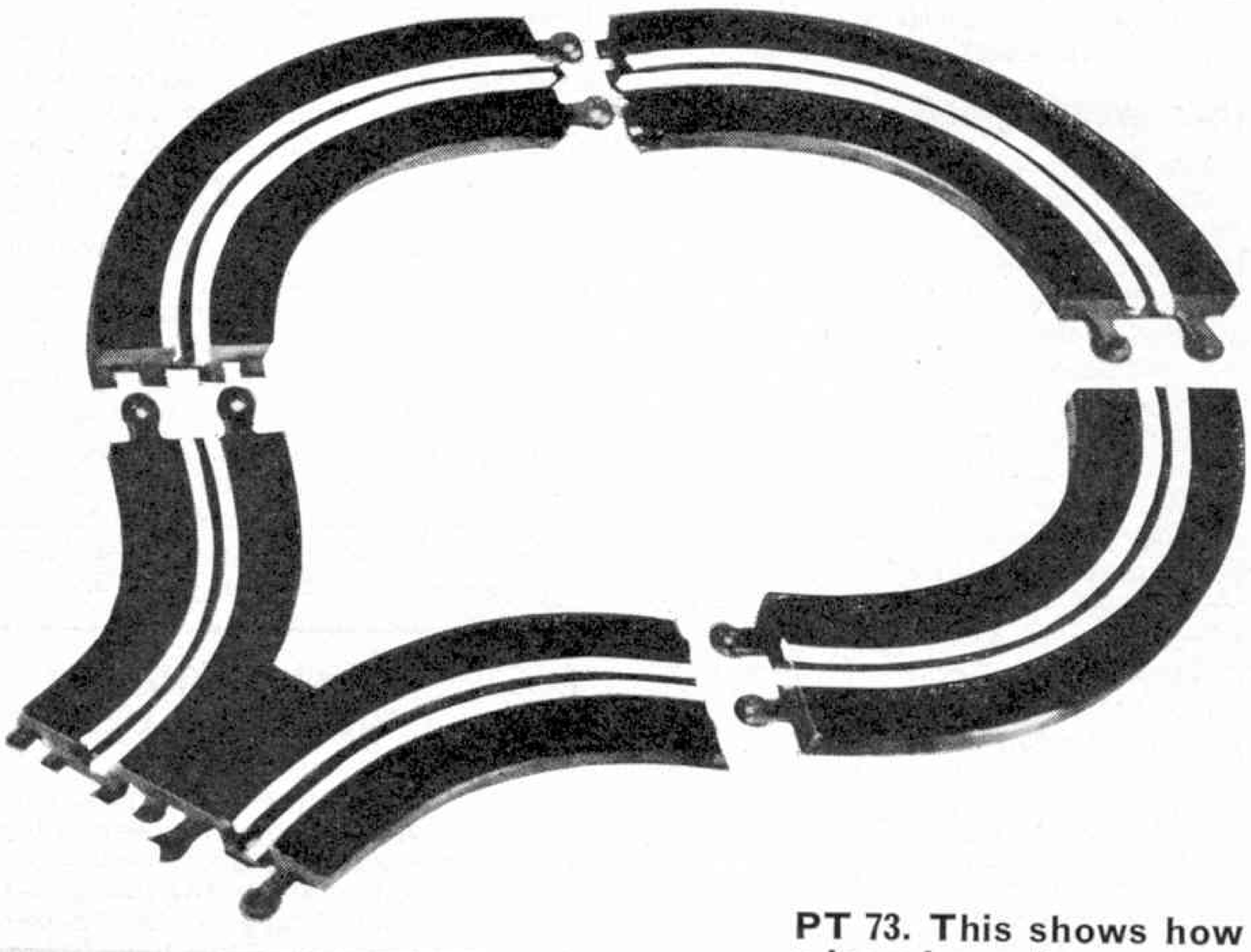
In this article Pitman shows you how to make trees and also some new track sections.

EARLIER on we talked briefly about buildings and each month I'll try to add little snippets to help you in adding realism to your circuit.

You will find that with some of the Scalextric buildings in kit form, the walls are moulded to look like brickwork—these are white and have to be painted the correct colours. I have found that the easiest and most effective way is to use the 'smear technique' and this is done by using a piece of colour-soaked cloth instead of a paint brush. This is a most rewarding method of colouring and you could do several buildings or walls at the same time to avoid having to change the cloth and waste paint. When the walls are dry, finish the window ledges and doors with a paint brush and a different colour.

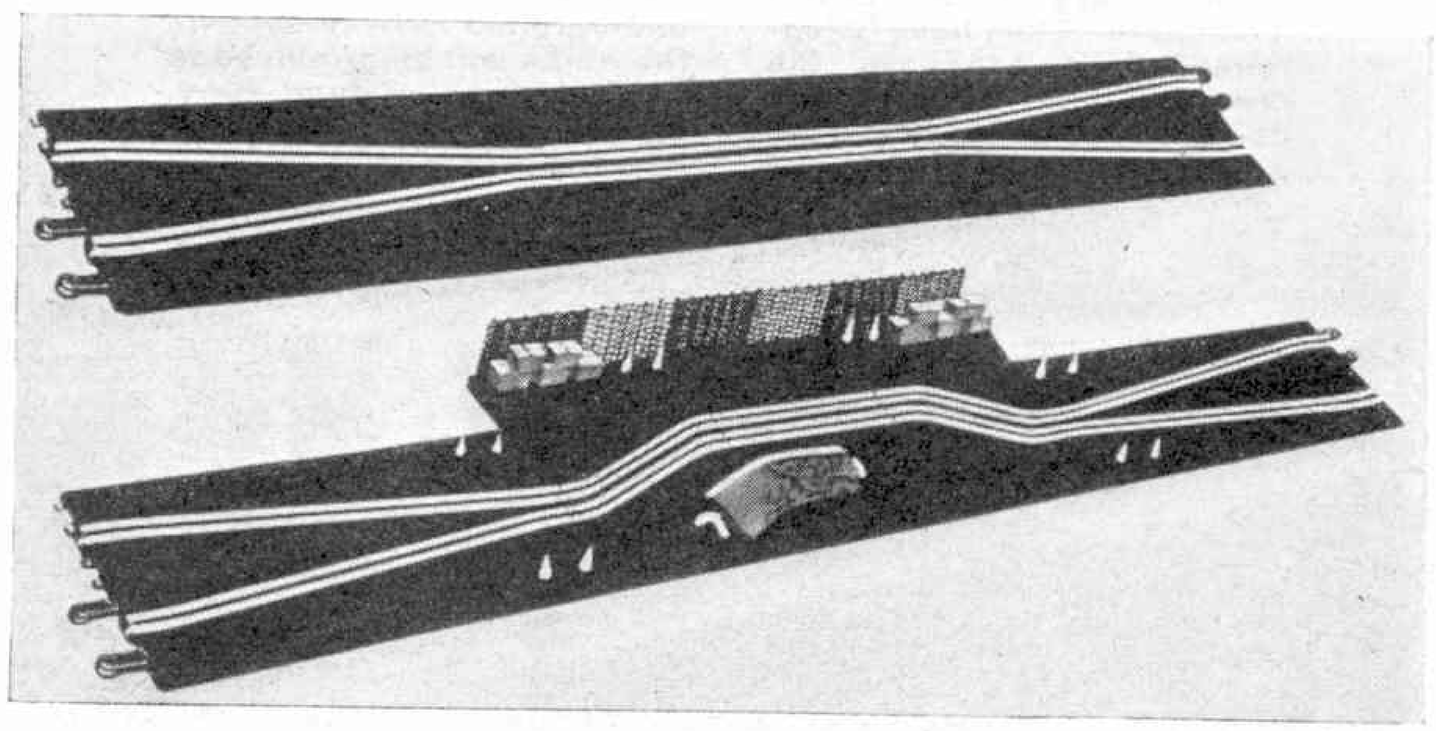
If you are considering lighting up your buildings from the inside, it is advisable to paint the inside walls and roof with a black matt paint which prevents the light from shining through. Incidentally, when colouring anything which you want to finish on a straight edge, 'mask' the edge with a piece of sellotape, wait till the paint is dry, then peel off the sellotape and you will have a perfectly straight line with no irregularities.

No landscape anywhere is complete without trees. You can buy them in model shops, but I find it more interesting to make my own. They are quite simple to construct and you can make them to fit into any space. You will require some wire, say 30 gauge, green foam plastic sponge and P.V.A. glue. Make up a 24 strand skein of wire about eight inches long, divide the upper part into two, then twist the lower part for the trunk. Continue to divide and twist the upper parts to form branches, then snip the loops to form twigs. The number of branches and twigs you finally have will depend on the number of strands of wire you started off with. Bend the bottom strands outwards and snip off to form the base and roots, then bind the trunk with model aeroplane covering tissue and glue it in place. Now paint the whole tree with brown paint. Shred a piece of plastic foam on a cheese grater to produce a supply of small pieces which will be used as foliage. Take these small pieces and stick them on to the twigs one by one, using a pair of tweezers to make it easier and P.V.A. glue which will dry colourless. You have now made quite a presentable tree and by re-shaping on your next one and increasing or decreasing the number of

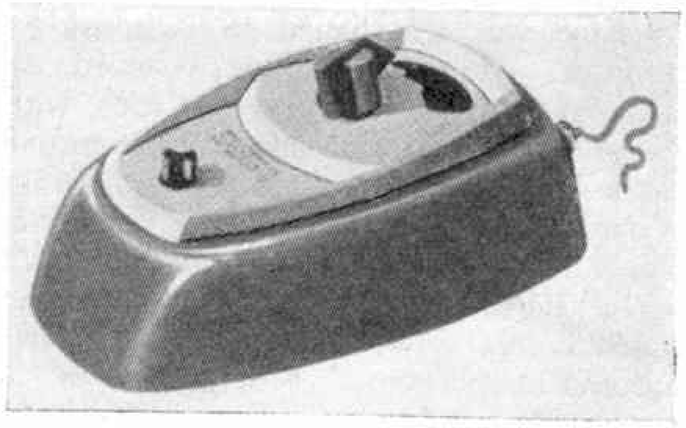


PT 73. This shows how a loop is made up.

The Short Chicane and Long Chicane referred to in the text. (PT 76 and PT 77)



The Fuel Load Gauge (A 245) can be used to add a touch of realism to your circuit.



branches and re-shaping the foliage you can make quite a variety of trees and bushes to decorate your layout.

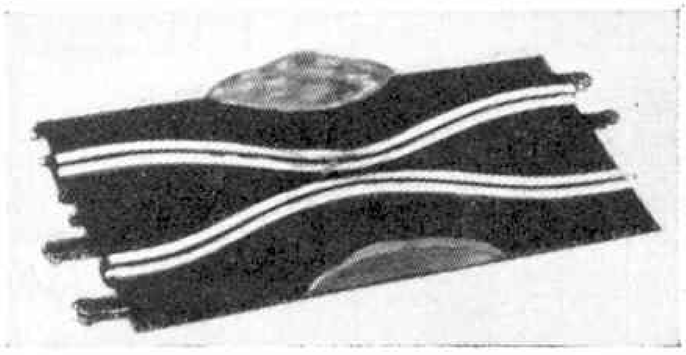
For those of you who are now accomplished Scalextric drivers, there is a new addition for your circuit in the shops and it will provide you with not only extra fun but will test your skill as a driver—it is the new Skid Chicane. It measures 13¾ inches, so it can be used in place of a standard straight section and inserted whenever you have skilful drivers on the circuit. There are, of course, other chicanes of various types and lengths—the Short Chicane which is in two pieces and measures 27½ inches, the Long Chicane, the Goodwood Chicane and the Standard Curve Chicane. Any one of these will add to the excitement of a race as one of the cars racing *has* to give way or suffer the consequences, a bad spill resulting in loss of time or even a penalty.

Fuel Gauge

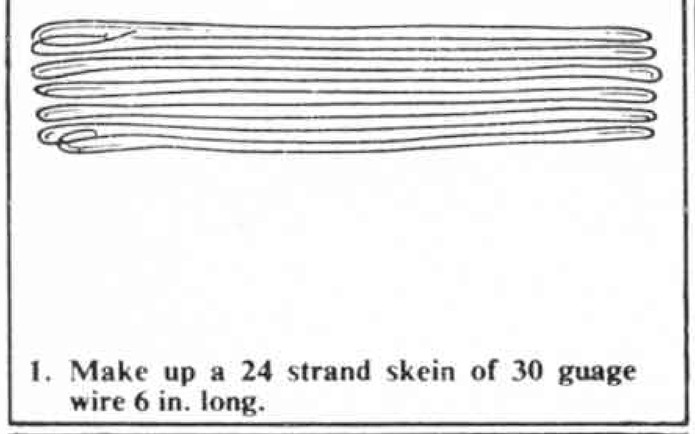
You know of course, that the load of fuel a car carries restricts its maximum performance and that as the fuel is used up and with a corresponding reduction in the weight, so the performance of the car improves. Scalextric have brought out just the piece of equipment to simulate this—it is called the Fuel Load Gauge and it is fantastic. The operation is simple; connect it to the power circuit and set the amount of fuel you think you will require for the race. If you set a full tank, your car will not be so fast, on the other hand, if you set too little, you may have to make a pit stop for refuelling and lose time, or even run out of fuel whilst you are away on the other side of the circuit which would be disastrous. The Fuel Load Gauge is really an ingenious piece of equipment and when you use it, real racing tactics have to be worked out. Depending on the nature of the circuit, it may be advisable to start with a full tank and lose a little speed or go all out for speed even to the extent of having to make one or two pit stops. This depends of course on whether your circuit is very fast or contains a number of tight turns and hazards which slow it down. In either case, the Fuel Load Gauge is ideal, and by knowing your circuit better than your father's friends, you can successfully challenge them any time!

I remember a few years back at Silverstone, there was a parade of Minis driven by top drivers. They were lined up on the grid, the flag went down and off they spurted—BACKWARDS! Though this caused a howl of laughter from the crowd, you don't want this to happen when you start a Scalextric race. After connecting up, always make sure that the cars travel in the right direction. If a car travels the wrong way, it is a simple matter to remove the track connector, turn it round and replace it, by reversing the polarity you have altered the direction of the car.

Let me know if you have any problems at all with your Scalextric equipment and of any improvements you have made to your circuit, so that we can pass it on to other enthusiasts.



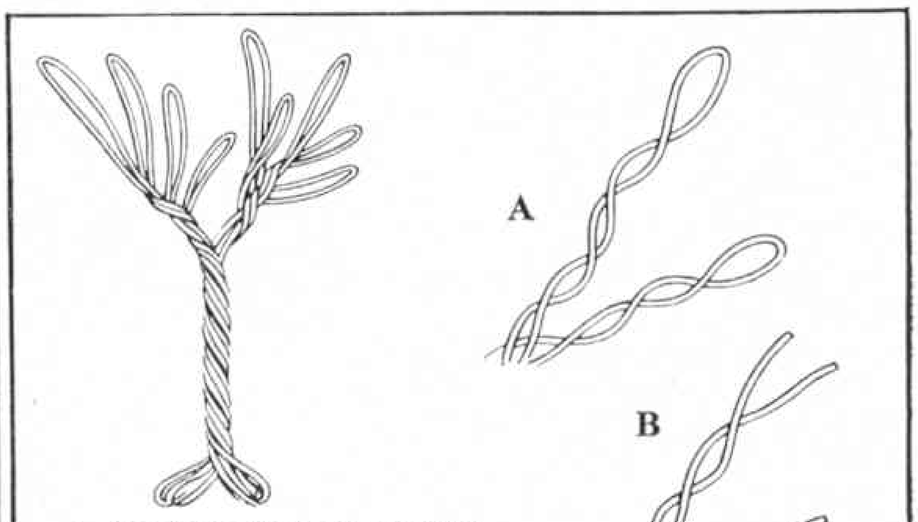
The new addition to the list of accessories is the Skid Chicane (PT 78)



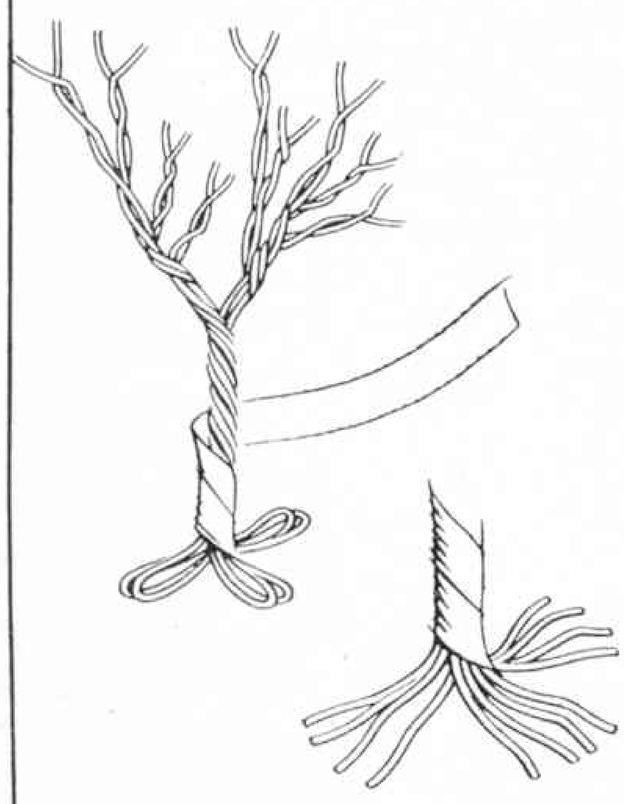
1. Make up a 24 strand skein of 30 guage wire 6 in. long.



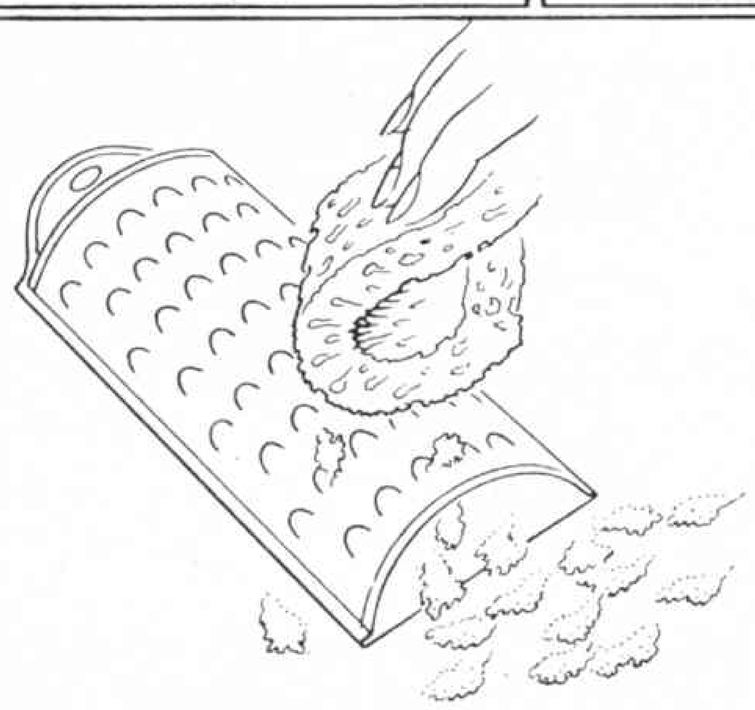
2. Divide upper part of the skein into two. Twist the lower part to form the trunk.



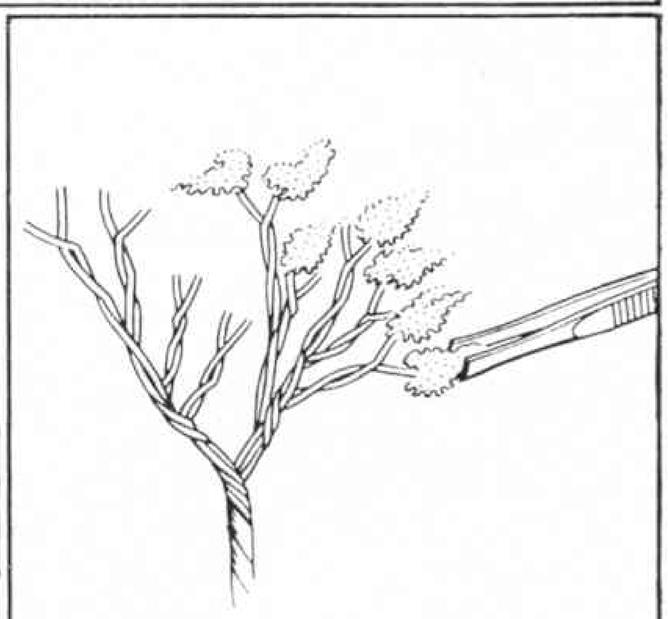
3. Continue dividing and twisting the wire to form branches. The end of each branch will look like "A". Each loop is now cut to form "twigs" (B).



4. A strip of thick model aeroplane covering tissue is wrapped around the trunk up to where the branches start and glued in place with P.V.A. adhesive. The lower ends of the trunk are now bent outwards to form a stand, then clipped like the branch ends to represent roots. The whole tree is now painted with dark brown paint or enamel.

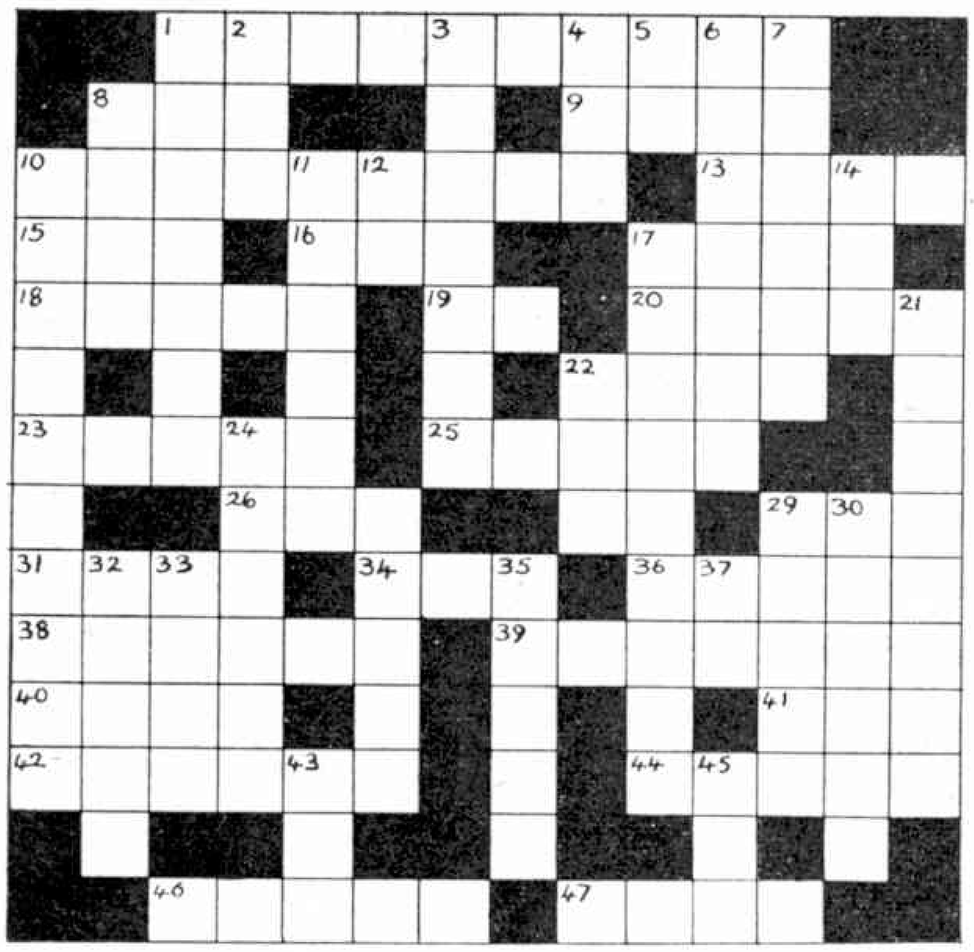


5. A piece of green foam plastic sponge is "shredded" on a nut-meg grater to produce a supply of small feathery edged pieces about ⅛ in. or 3/16 in. across.



6. This is the foliage. It is stuck to the ends of the branches piece by piece. Use P.V.A. glue which dries colourless. A pair of tweezers will make the job easier.

Crossword Puzzle No. 9



Across

1 Cascades
8 For sleeping
9 Curve crossing itself
10 Fungus
13 One-horse carriages
15 Head-cover
16 Small child
17 An island
18 Rarified atmosphere
19 Exists
20 Rascal
22 Irridescent stone
23 Trio
25 Method of cooking
26 Pig's home
28 Sixth note of the scale
29 Watering place
31 Frozen confections
34 Period of time
36 Currency
38 N. America
39 Spanish town
40 Andrew
41 Vehicle
42 To be learnt
44 Happening
46 Vapour
47 Celestial body

Down

1 Forecast daily
2 Increase
3 Disturbing of peace
4 The whole amount
5 .... and behold!
6 Reasonable
7 Like a pyramid
8 A vessel
10 Connected with the stage
11 Thoroughfare
12 Preposition
14 Jewel
17 Promenade
21 Agreeable
22 Lubricant
24 Literary pieces
27 Hopes
29 Pole
30 A doctrinairian
32 Flexible sticks
33 Finishes
35 Once more
37 Close to
43 Single
45 By way of

Puzzle Page

Turn to page 14 for answers to the puzzles on this page

TRICKY TEASERS

LETTER PLAY! Make a famous London building with the following letters: F. E. R. two N's, four O's, and W. L. T. D.

If that one baffles you, try to find the name of an ex-President of America with two O's, two E's and T. L. V. R and S.

● ● ● ●

In order to disguise a message, a crook resorted to the idea of altering just one letter in every word. This was the result. Can you work out what the message was?

O stall hive so fund I wide-our far she tide bring us tie polite arm catching we. Kill you harry in wits thy plank be wade end a till mend I better go four mouse is moon us at if sale. Won't fry no bet unto couch pith my.

● ● ● ●

Here's a test of clear-headedness!

How many is five over one under three over six under seven over four under three over six under four over two under eight?

● ● ● ●

Can you spot the "odd man out" in this list of sports and games? Tennis, cricket, football, billiards, hockey, badminton, bowls, golf.

Back numbers of

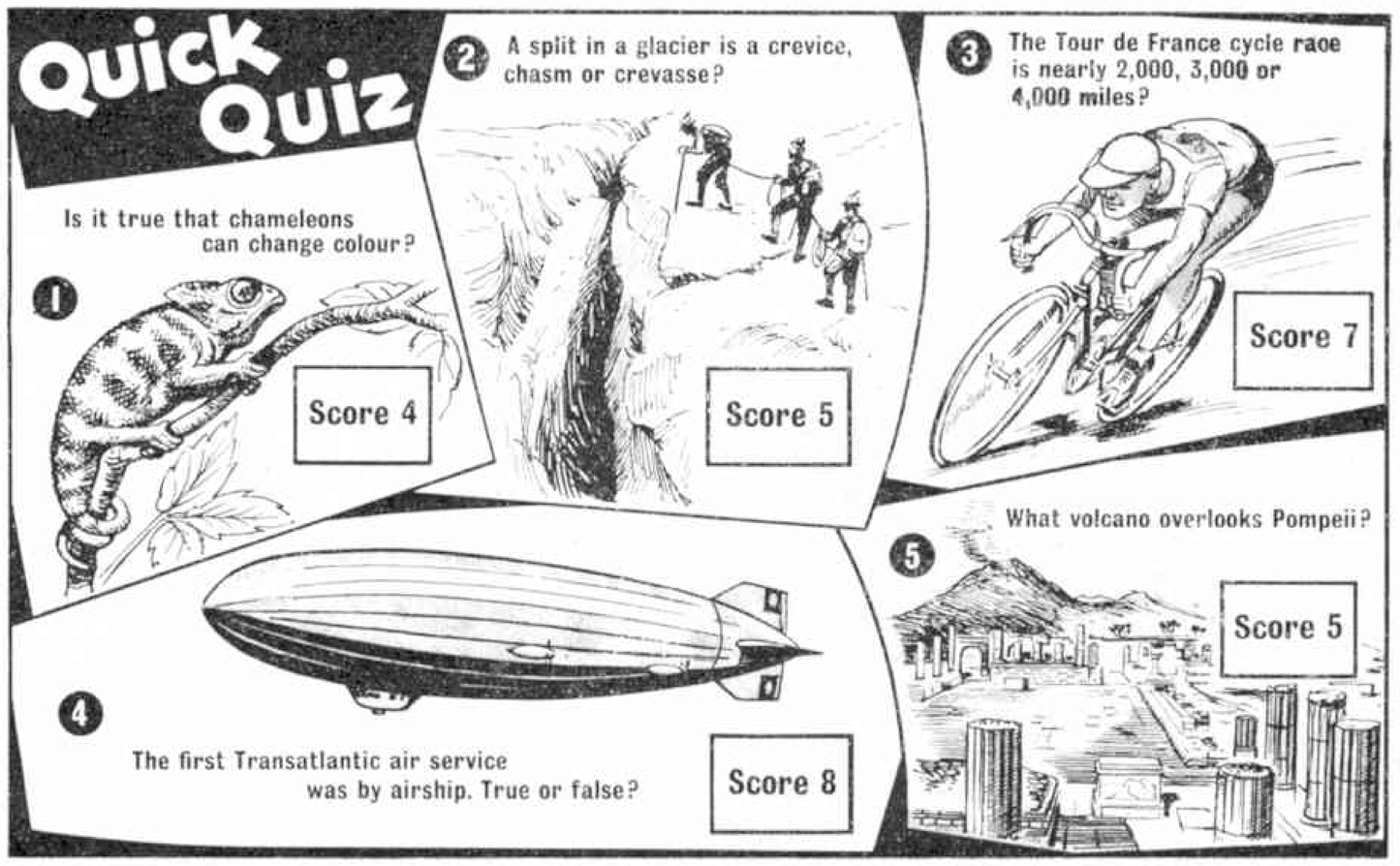
Meccano Magazine

are available from the publishers at 2 shillings each

Write to the Circulation Manager

Meccano Magazine

St. Alphage House, Fore Street, London, E.C.2



Holiday Photography

BY PAUL DONG

HOLIDAYS with a camera can be great fun and result in a permanent record to remind you of your summer exploits during the long winter nights. However, it is possible to spend some considerable time and money and finish up with a collection of very disappointing pictures or a damaged camera. Therefore, this month, I will give you some tips on travelling with your camera.

First of course, you will be travelling either within this country or abroad. So, the first thing to watch is that your camera is either hung securely around your neck, or packed safely in a case, well away from hair grease or anything else that may leak on to it.

Round your neck it is ready for instant action and from instant damage from knocking or rain, so make sure that it is in a stout case. If it is fitted with a plastic strap, it would be better to replace this with a leather one or a light chain, both of which are available from photographic shops for a few shillings. Plastic straps have a habit of breaking.

If you travel by boat, be careful about getting water on your camera, as salt spray can quickly ruin the delicate coating on a lens. A filter will stop this when the camera is in use and if it is a yellow one, it will give you better rendering of the clouds and water.

Travellers by air may find that the regulations of countries they are flying over make it necessary for the cameras to be packed in the luggage hold, not taken into the passenger cabin. Therefore, you can save a lot of trouble and opening of suitcases at the airport if you enquire before you set off. Photographs from the air need about two stops less exposure than those on the ground.

When you arrive at foreign countries, you will have to pass through customs and declare cameras and other expensive items. Usually you will be allowed to take one amateur type camera in per person, free of duty, without any formality, but it is as well to enquire when you book your trip, especially if you have an expensive camera. This is only a concession made by the various customs, *not a right* and is at the discretion of individual customs officers. On a recent day trip to France, I had some bother with customs over a camera and nearly had it confiscated, simply because I had not filled in the necessary forms and, as it was an expensive camera, this particular customs man insisted on following the regulations to the letter. If you are in any doubt, you should contact the London offices of the countries you will be visiting.

Take all receipts for your equipment as these will make passage through the British Customs easier when you return. You must declare your cameras, even if bought in this country and will have to pay duty and purchase tax on anything purchased overseas.

This is calculated on the price you pay, i.e. the retail price. On anything bought here, it was charged on the wholesale price at time of entry, so it is obvious you shouldn't have to pay again.

Precautions

Take plenty of film with you, as your own favourite film may not be available at your destination, either at home or abroad. It may also cost you more abroad. Some countries have regulations regarding the amount of exposed and unexposed film that can be taken in and out, so once again, a check is advised.

Before you leave, test all your equipment to make sure that it is working and insure it against accidental loss and damage. The cost is only about 10s. 0d. per £100 of value. Your local photographic dealer is probably an agent for the firms that specialise in camera insurance and will be able to arrange this for you.

While you are there you could ask him for a copy of the Kodak leaflet 'Travel Tips', which gives you many useful pointers to holidays with a camera.

A camera is a precision instrument and should not be subjected to undue vibration, heat or damp. So, as already mentioned, the best way to carry this is around you neck in a protective case. Plastic bags are useful if you get caught out in a sudden shower, but do not leave the camera in it longer than necessary or it may be harmed by condensation. If you put the camera down, put it in the shade, not on the ground where sand, water or insects can get into it. Also, try not to leave it in a locked car or coach. Apart from being stolen, it will also get cooked if the sun is out.

What to shoot

During the actual travelling, you will be able to take some interesting photographs of airports, docks and railway stations, but note that you must not take photographs in some places abroad and that, in some countries, it is an offence to photograph people in the street without their permission. In countries where this law applies, the local inhabitants make a comfortable living by dressing up in their national costume and charging visitors a few shillings a time to take photographs.

Obviously, military installations should not be photographed anywhere, nor should the interiors of Customs and Immigration halls of docks and airports.

If you are touring, a map and guide book will direct you to interesting points that may be worth a photograph, and in this country you can use the photographers' maps which are available from your dealer. These are marked where there is a pretty village, old ruin or other subject for photographers.

Try to avoid picture postcard views, as it is often cheaper to buy a postcard. Concentrate on taking photographs of smaller areas and of things that are of particular interest.

Below left; a fine use of the evening light in the holiday island of Jersey. Right; a good example of having the camera at the ready.



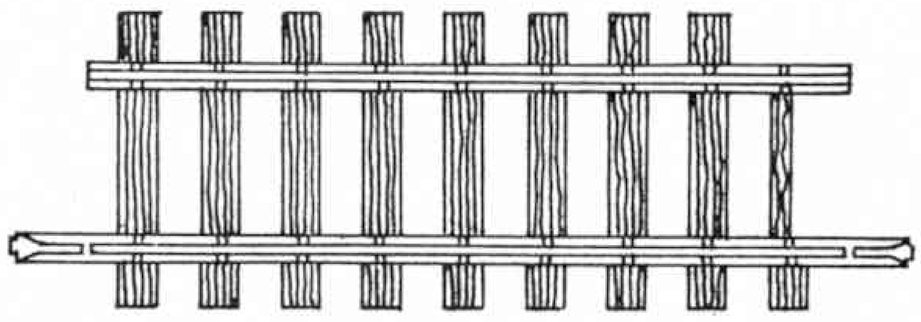


TRI-ANG RAILWAYS & HORNBY-DUBLO

THESE TWO FAMOUS MODEL RAILWAYS HAVE GOT TOGETHER FROM NOW ON IT'S

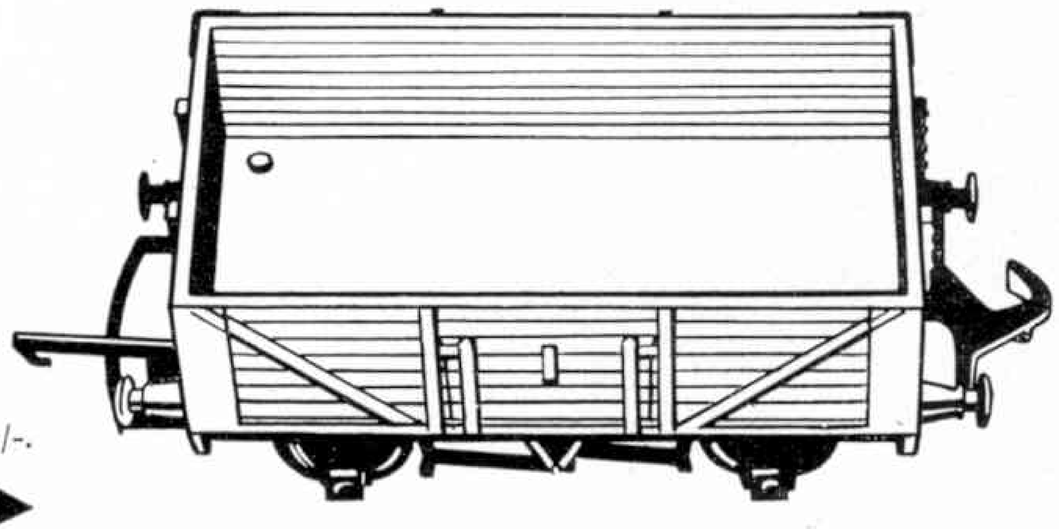
Tri-ang Registered Trade Mark HORNBY

Now that these two model railways have joined forces there is no end to the variety of exciting layouts that you can create. With Triang Hornby you have the most wonderful choice in the world of locomotives, rolling stock, stations and accessories—don't wait till Christmas, see them now at your model railway shop. If you have a Hornby Dublo railway, remember you can easily add Triang Hornby track and rolling stock to your layout with the specially created Converter Track and Converter Wagon.



▲ This is the Tri-ang Hornby Converter Track $2\frac{7}{8}$" long. It costs 1/-.

This is the Tri-ang Hornby Converter Wagon. It costs 2/6. ▶



PORT WHEEL UP!



'JETLINER Red Able Dog Seven. This is Stanswick control tower. Do you read me? Over.'

The studiedly neutral tones of the traffic controller enunciating the near-incomprehensible jargon of aviation always soothed Martin Tracey slightly. Although the ultra-high-frequency radio fitted to the majority of aircraft filtered out most of the interference from static, and there was virtually no bother with other radio systems, there was no doubt that on many an occasion, reception was difficult.

'Red Able Dog Seven to Stanswick Control. Receiving you full strength. Course 220. Speed 650 knots. Height 20,000. I have 125 gentlemen of the press on board and my ETA is 12.45. Is the bar well stocked? Over.' Digger Ames, in the co-pilot's seat, grinned widely at the last remark.

The new Jetliner was on its proving flight from Stanswick to Idlewild and back *without refuelling*. The ultimate was a non-stop flight to Sydney in a little over twelve hours—an average speed of 1,000 m.p.h.—but the makers were taking careful one-by-one steps. The Atlantic double had been accomplished with an almost casual ease. Filled up with a huge party of journalists, the Jetliner had whistled across 6,000 miles of ocean at an average speed of 800 m.p.h. so easily that the passengers had completely forgotten they were flying—the best compliment the aircraft could have been paid.

Now, with less than half an hour left to end a flight that would undoubtedly have put the British aircraft industry back in its old world-beating status, disaster struck.

Deep down inside the complex banks of electronic apparatus that form the bulk of any aircraft, a resistor burnt out. It fizzled quietly away and allowed a full 24 volts to flow through a minor circuit instead of the rated 14 volts. The extra flow did not blow a fuse or slam out a circuit breaker—it did not even register on the baffling array of instruments on the flight decks. Perhaps a meter flickered for a fraction of a second; perhaps a warning gleam blinked on a remote dial —perhaps. . . .

Whatever emotions the instruments may have registered, they were not noticed and certainly there was no perceptible response as far as the handling of the machine was concerned. Perhaps the hilarious spirit of the party may have dulled the super-sensory perceptions of Tracey and Ames; perhaps the pair were in an elated mood over the superb success—perhaps again. . . .

Wheels stuck

With any disaster, there are always so many 'perhaps' that it is impossible to decide where the break-point occurred. And so it happened with Martin Tracey. He swung on to the course laid down by the Stanswick controller and the Jetliner responded smoothly and instantly. The airport was twenty minutes away and Tracey levelled out for the run-in. He was on the Stanswick radar-talkdown and the controller had taken over.

'Throttle back to 200 knots and lose height to 10,000 feet.' Tracey eased back the throttle-cluster and moved the column a fraction forward. Back in the boisterous main section of the aircraft, the passengers felt a faint fluttering deep down in their stomachs—so did Tracey and Ames. In spite of the pressurised cabin, both men instinctively swallowed hard to counteract the blocking of their ear-drums, even though there was no need for it.

'In two minutes from—NOW—you will see the runways,' came the same precise, cool voice over the radio. 'Blue-One runway is yours. Level up on 195 degrees; 160 knots; down to 5,000 feet and it's all yours. You will see the gasometer over your port side. See you in just a few minutes. Good show. Over and out.'

Tracey acknowledged and gave Digger a swift—unnecessary—glance.

Then the burnt-out resistor paid off. The wheels-up signal blared through the silent flight deck and the green undercarriage light stayed obstinately on—even though the control had been pushed over to LOWER. Digger Ames tore off a startling Australian oath and flashed his eyes like lightning over the panel. Nothing seemed wrong, yet the raucous blare of the wheels-warning still screeched through the flight-deck.

Martin Tracey flipped the over-ride switch off. 'What's up, Digger?' he asked quietly. 'Dunno,' replied the worried Aussie.

The Jetliner increased speed and began to climb. At the same time as he started this alteration to course, he flipped over the Mayday frequency. Without a thought for the usual formalities of calling the aerodrome, he cut straight into—and above—the other calls to and from the tower.

General Alert

'Suspected trouble with the undercarriage,' he rapped out. 'We are in visual contact with you. Check please. Our wheels should be down. Over.' There was silence for a second and both men could visualise the activity the terse statement would have made at Stanswick. The controller would have pressed the Mayday button and all the emergency services would have been alerted. The usual aerodrome ambulance and fire brigade units would be howling away from dispersal with their weird 'hoo-ha-hoo-ha-hoo-ha' sirens blaring.

As soon as Tracey's Mayday distress call went out, the entire organisation sprang into life. But that was of minor interest to Martin. He had only one main interest—find out what was wrong. The mighty Jetliner soared upwards and, as the familiar tug at his stomach came in, he saw the gasometer far below him. He levelled off and circled the aerodrome in majestic sweeps that covered a major part of northern England.

Almost immediately, Stanswick came in. The starboard wheel was down and so was the nose-wheel—but the port wheel was up. It was not all that uncommon. Undercarriages weighing a ton or more sometimes behaved badly but there were many tricks to overcome such erratic behaviour with, as the last resort, the back-breaking routine of overriding the master control and cranking the huge cart down by hand. Digger Ames did not need any prompting. He

went straight into the emergency routine and cut out the auto-lower of the undercarriage. His finger stabbed at the blue button three times but the warning light still flickered. Only slightly perturbed, he cut out the electric-hydraulic controls and hit the manual release.

In theory this over-rode all other controls. Electro-magnets holding all the undercarriage in place smashed outwards and all releases opened. The sheer weight of the undercarriage should have brought the wheels down and the inertia-locks would have clicked home as the giant oleo-legs hissed down to their landing stage.

But nothing happened. That little two-meggor-resistor had fouled a dozen subsidiary circuits and the electro-magnets remained shut. In turn, the hydraulic units sat stubbornly silent and the port wheel stayed up.

'O.K., Digger', commented Martin Tracey briefly, 'we'll shake it down. Make sure the passengers are belted up —and make sure they know the form. They are responsible types and will know what's involved.' Digger nodded and vanished through the door from the flight deck. In a matter of less than a minute he reappeared. 'All set,' he remarked, 'the lads are all adjusted.' He grinned to himself because all the passengers had tightened their safety belts up really well, instead of the casual flip of the buckle adopted by blase air-travellers.

'We'll flip her'

'Right, then. We'll flip her first,' snapped Martin Tracey. By this he meant dipping the port wing and then jerking the aircraft savagely up so that the full flick-force of the brutal manoeuvre would be on the port wing. It was rather like flicking your hand to shake a sticky piece of paper off. But the results could be a little more drastic.

A really good flip could have one—or more—of three results. One was that the sudden shock could jerk the release toggles free and the undercart would drop. The second result was that the toggles would *not* break and the resulting reaction of the flick would irrevocably jam the wheel up solid and—worst of all—it was quite on the cards that the terrific moments of force round the wing-roots could tear the whole wing off.

Tracey dipped the port wing and then smashed the aircraft back up to maximum starboard bank. The effect on the port wing was frightening. It bent like a thin cane whipped through the air and the skin of soft aluminium on its surface buckled and sheared into a crazy-paving design. The Jetliner shuddered through every inch of its Weybridge-built excellence—and it came out. But the wheel was still up.

Four times Tracey handed out the merciless treatment and four times there was no positive result. But four times Tracey and Ames found a second to bless the men who had left the TSR-2 contract to build this giant of the skies. Their skill and loyalty which had gone into Spitfires, Wellingtons, Lancasters and a dozen aeroplanes that dominated the skies of the world until the TSR-2 had been thrown away had not been lost. The Jetliner took the battering — and came back for more.

But it was no good. The fierce grip of the Ferranti electro-magnets did not slacken in spite of a ten-fold overload and Tracey now had two aces up his sleeve. He could belly-flop the machine and hope that the wing-tip would not dig in. On the other hand he could bounce —and literally bounce—the aircraft on the ground so that the nose- and starboard-wheel would jerk back up so letting him try a comparatively safe wheel-up landing.

A lesser man would have held a short discussion with the crew and passengers. But not Martin Tracey. First, the bouncing trick. The passengers were alerted, so was control—and then he went in. Far above landing speed to maintain his lift with the flaps up and full emergency boost ready. . . .

The huge aircraft screamed down the main runway at a full 200 knots with Tracey's every nerve and muscle strained. The enormous, smooth-tread Dunlop tyres bit into the tarmac with a vicious scream and spurt of blue smoke that made every part of the aircraft shudder to the point where bulkheads strained and fittings flew off. And still the wheels stayed in their obstinate position—nose and starboard down, port up.

Tracey tried once more. Like a debutante taking a curtsey at a ball, the port wing began to drop and Tracey slammed the starboard engines shut and smashed the port engines through the wire to full boost over-ride. The Rolls-Royce jets bellowed an angry protest at this brutal treatment at ground-level (their most inefficient height for response) but they did their job. The wing lifted just enough to stay clear of the ground and, in the same breath, Tracey slammed on the starboard brakes.

The Jetliner slewed viciously round and its ground speed dropped to a mere 70 knots—slow enough for the supercharged AEC diesel fire tenders to howl alongside with their foam hoses spurting carbon dioxide over the wing and ahead of the aircraft. Tracey had just enough time to bless Sir Miles Thomas's persistent (and largely unavailing) programme to ban the use of kerosene in favour of more expensive, but less volatile, fuels, before the wing-tip dipped tiredly into the ground.

Keep the foam going

A dreaded fraction of a second before the tip bit, Digger Ames had smashed the main switch of the electrics shut and, with the bellow of the huge engines stilled, the Jetliner dug in.

The wing-tip disintegrated in a tortured howl of ripped aluminium and with all the 200 tons of airliner doing its best to cartwheel round the port wing, Tracey fought with the control column to fly an aeroplane that had become a Juggernaut skidding down an all-too-short runway.

Keep the foam going, chaps, it will make the kite skid easier. The fire-tenders were doing magnificently. The aircraft was losing speed. Fifty knots now—and there was the edge of the runway. On the grass—and that was worse than tarmac. The wing could bite into earth. The whole lot shuddering so badly —and thank the Lord, more fire tenders spurting foam all over the grass.

The Jetliner stopped. Tipped right over on one very badly damaged wing. Foam everywhere and the canvas chute from the tail full up with the journalists justifiably anxious to leave the machine. But it was all over.

'Got a cigarette, Dig?' asked Martin Tracey. 'Sorry, mate,' replied the lanky Australian. 'I'm giving them up.'

Answers to puzzles on page 10



Tricky Teasers

A. Tower of London and Roosevelt.

B. "I shall have to find a hide-out for the time being as the police are watching me. Will you carry on with the plans we made and I will send a letter to your house as soon as it is safe. Don't try to get into touch with me."

C. Eleven.

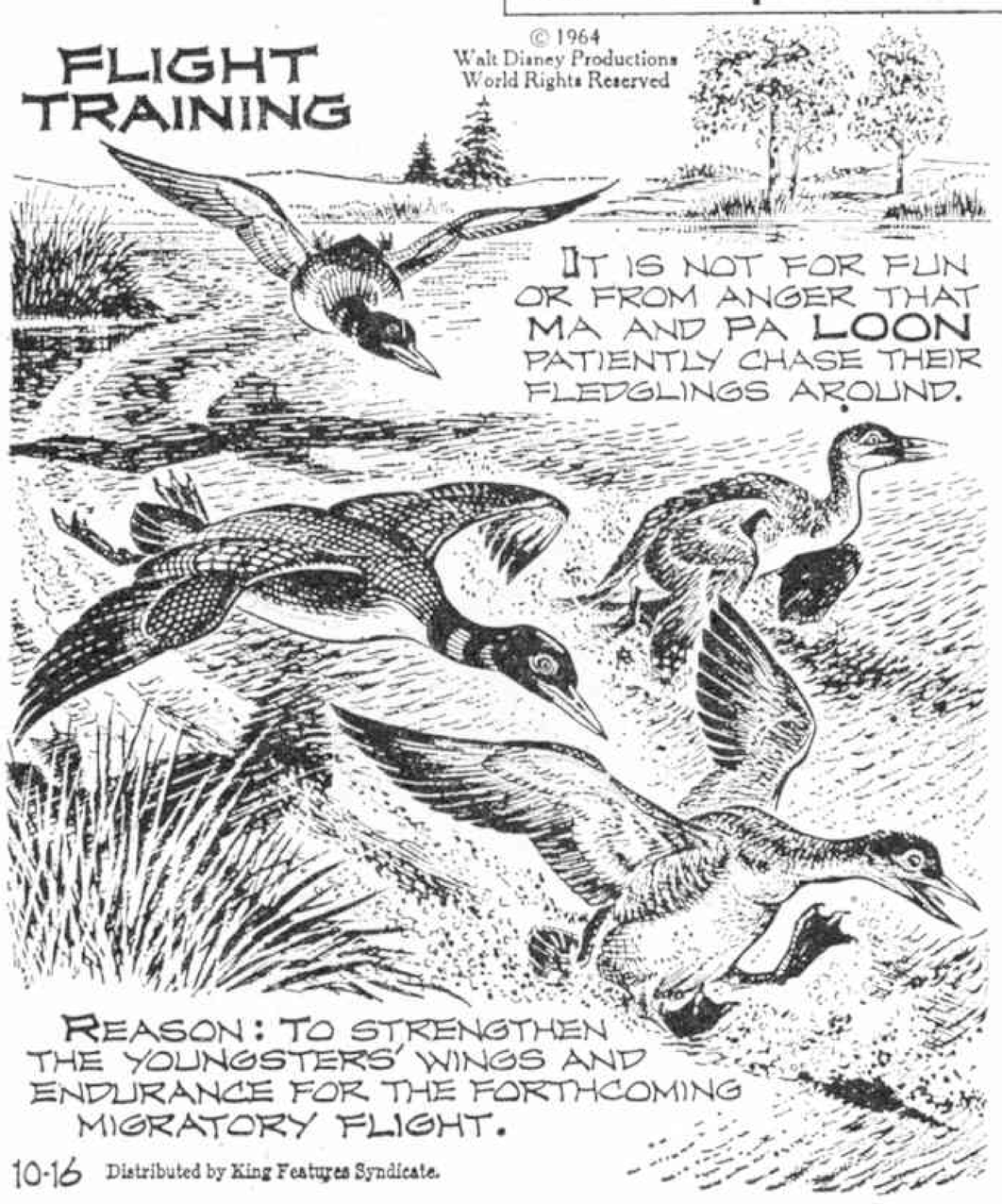
D. Badminton, the game *not* played with a ball.

Quick Quiz

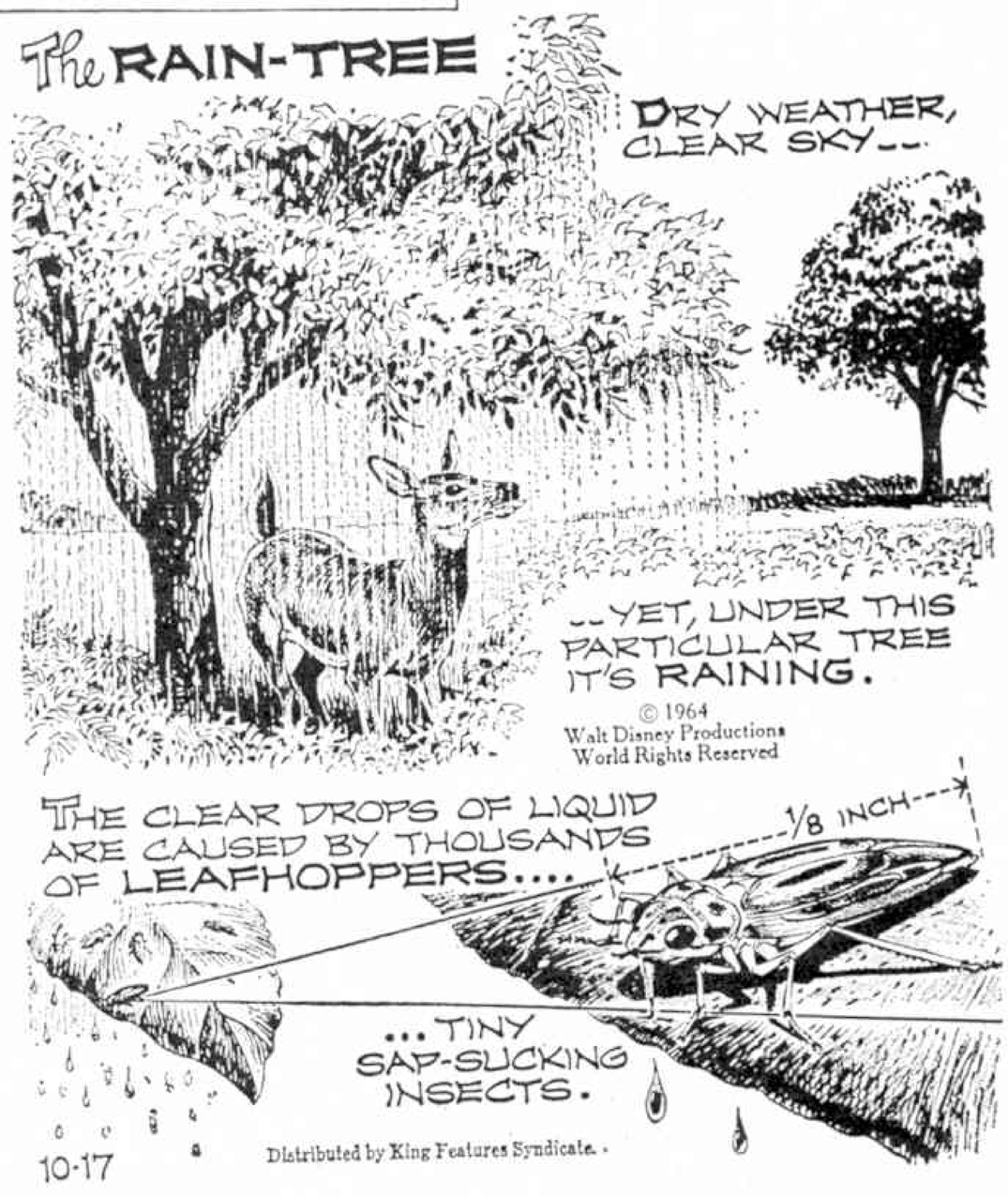
1. True. They change colour to harmonise with their immediate surroundings
2. Crevasse
3. Nearly 3,000 miles
4. True. The airship Hindenburg in 1936
5. Vesuvius

Score—Over 25: Excellent
Over 20: Good

Walt Disney's True Life Adventures



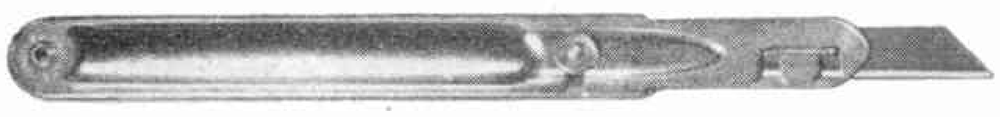
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KEILKRAFT x-acto HOBBY TOOLS

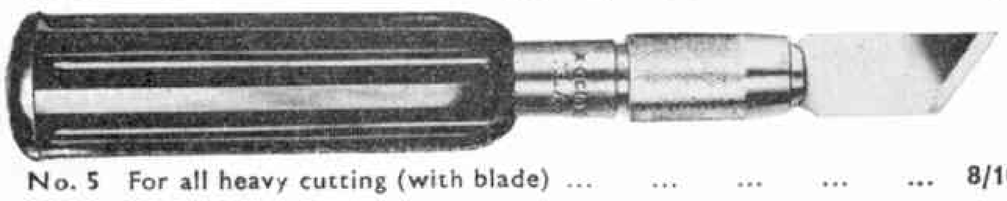
FOR THE KEEN YOUNG CRAFTSMAN



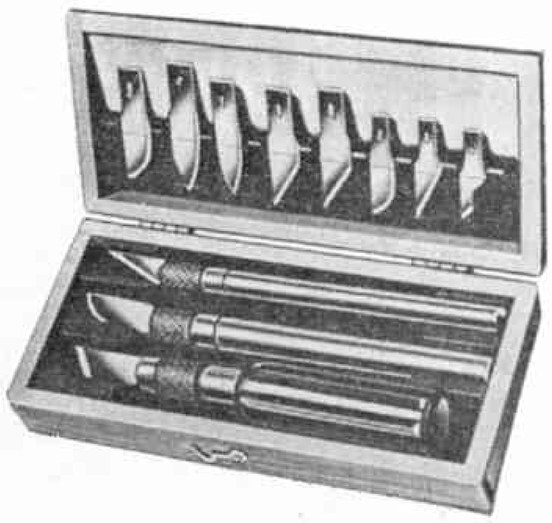
No. 1001 General Purpose Knife (with blade) 2/-
Spare blades (packet of 3) double-edged 1/4



No. 1. Slim aluminium handle 5" long (with blade) 4/6



No. 5 For all heavy cutting (with blade) 8/10



No. 82 X-ACTO KNIFE CHEST

Nos. 1, 2 and 5 Knives plus 9 asstd. extra blades. Handy, natural-finish wood chest 37/-

You'll do a better job with one of these super-sharp knives!



There are 28 x-acto interchangeable blades, gouges, punches and routers for every kind of cutting and carving job.

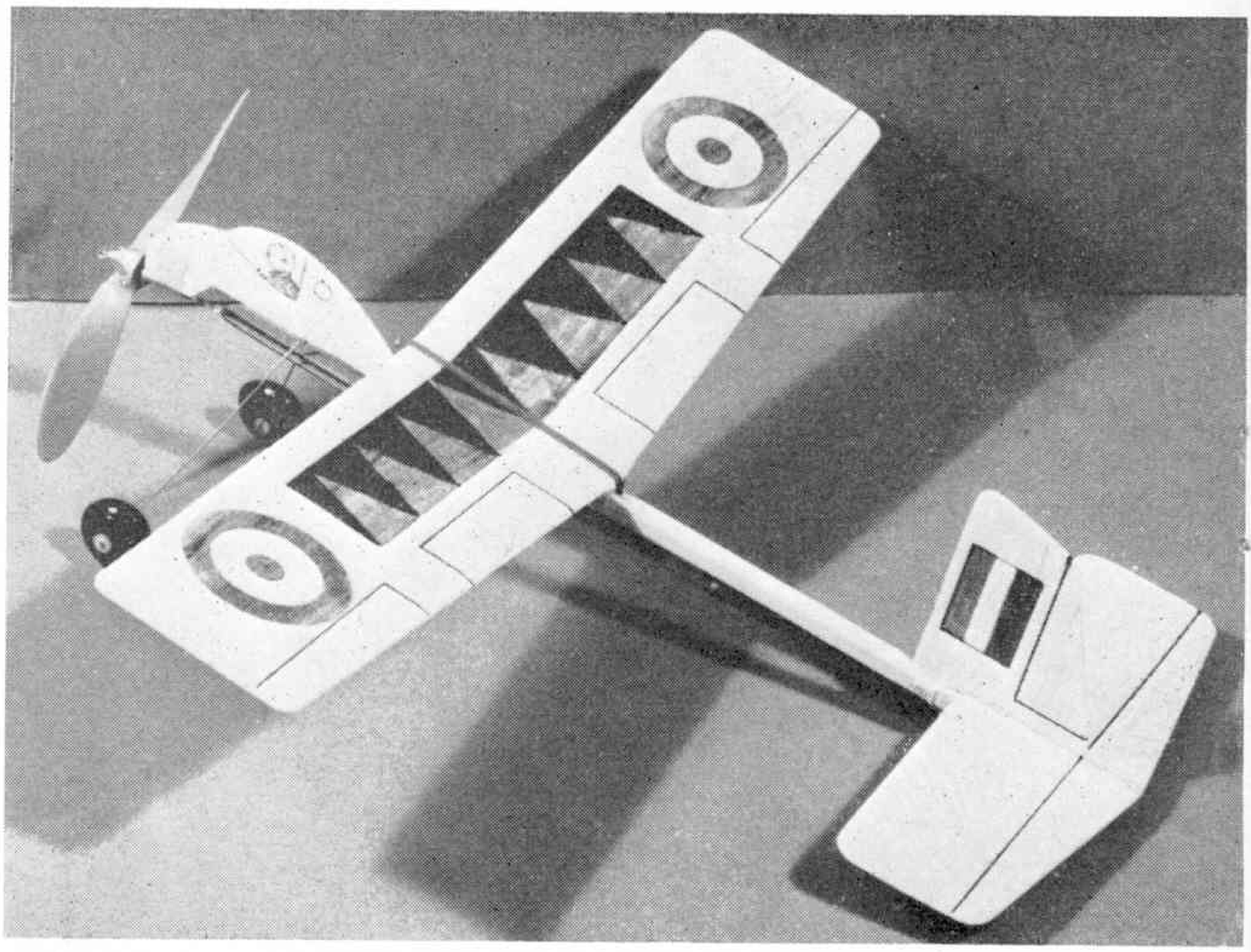
No. 86 BURLINGTON HOBBY CHEST
Contains Nos. 1, 2, 5 Knives and complete asst. of blades, gouges, routers, punches. Has X-acto Planer, Sander, Spokeshave, Balsa Stripper Steel Rule £5.3.0

See them all at your local model shop

Sole concessionaires KEILKRAFT WICKFORD, ESSEX

By Ray Malmström

Skyfly

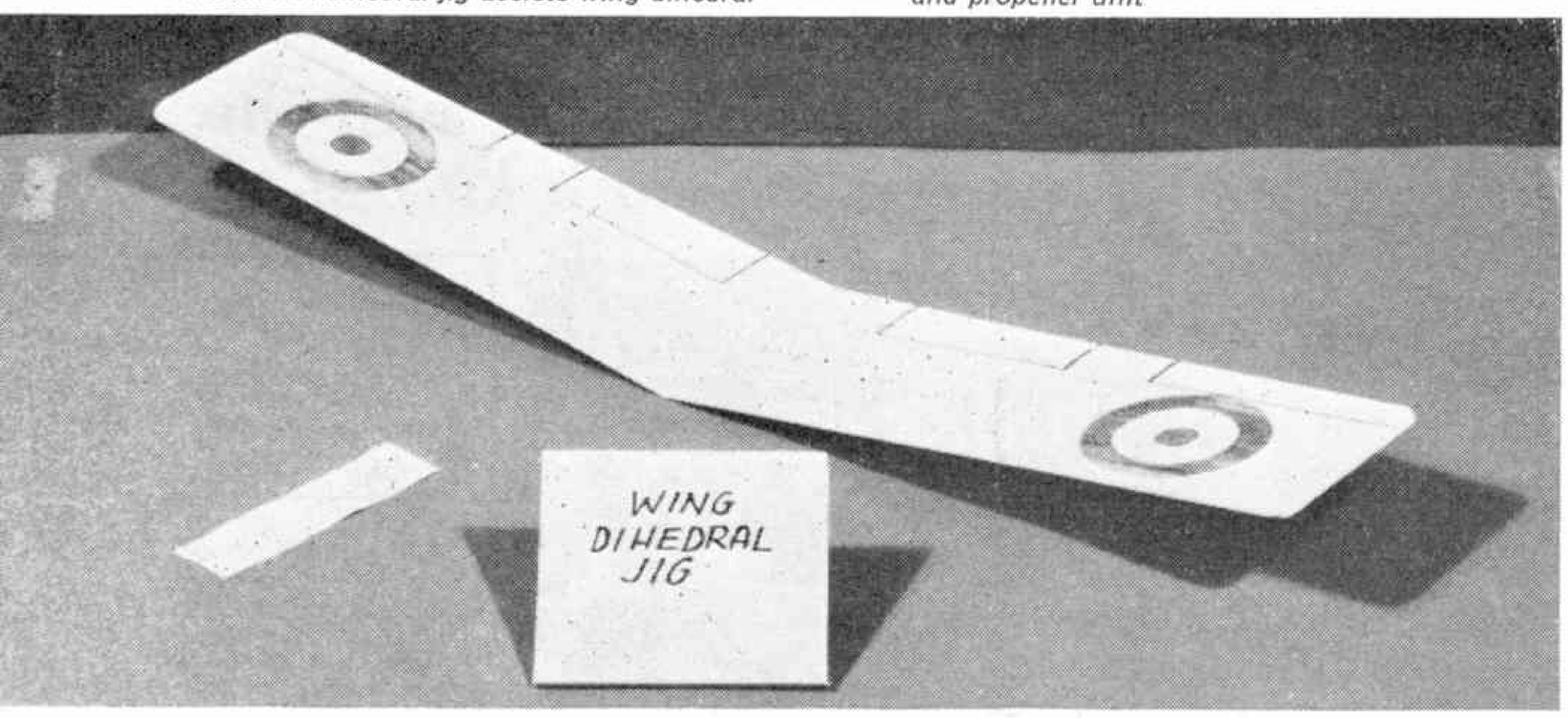


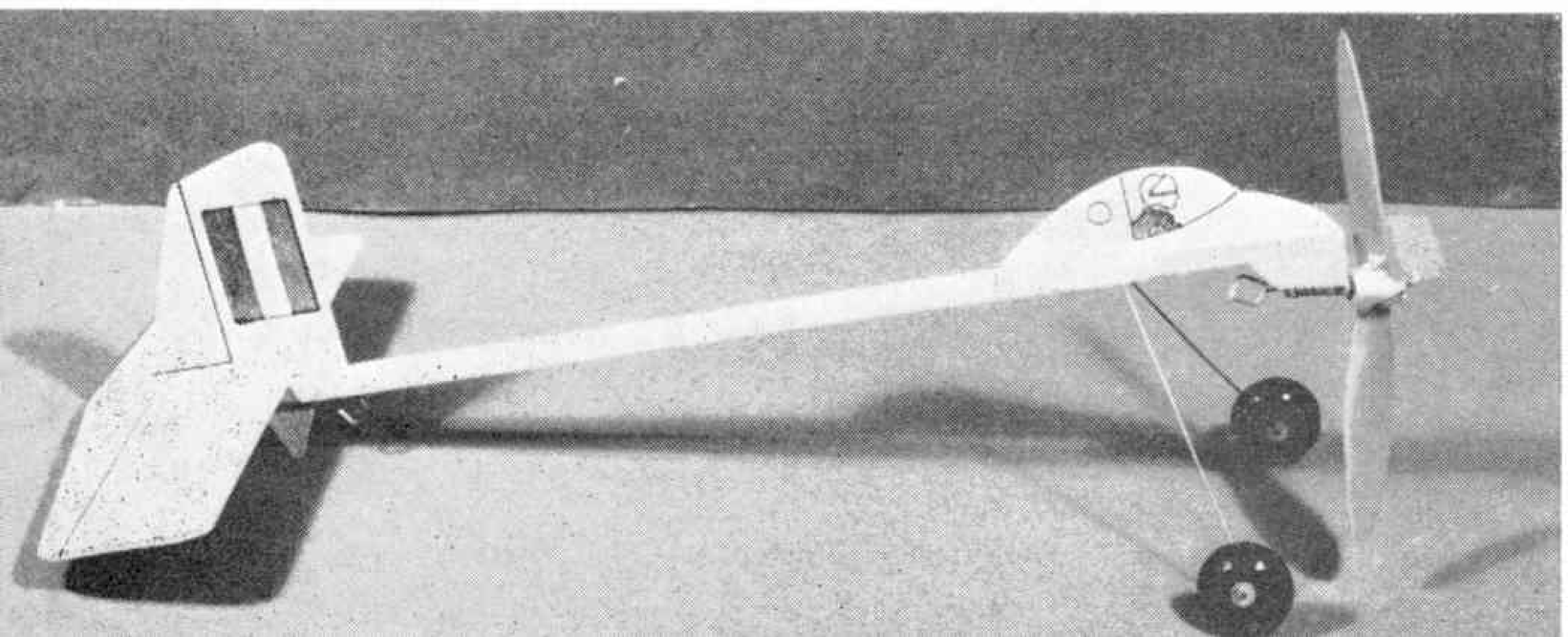
WAY back in the early days of model aeroplane flying the "stick" type model aircraft was very popular. The fuselage is just a stick to which is attached the wings, tail plane and fin, propeller and undercarriage. This set-up makes for a simple but very robust model and one that affords plenty of opportunity for learning how to trim a model aeroplane to get the best possible flight performance out of it. SKYFLY can be built in an evening and will give you lots of flying experience.

The plans are full size and the photo and "easibuild" sketches give you all the information you need to construct this first-rate little flyer. The cost, too, is an attraction—around two to three shillings!

One or two points we would like to stress. Make sure the brass bush that carries the propeller shaft and is bound and cemented to the propeller bearing block, slopes downwards at the correct angle. Build the wing mount accurately, so that when the wing is in position on it, the wing has an equal amount of dihedral (upward slope) on both sides. Make sure the thread bindings holding the propeller bearing block and brass bush and the rear hook are well coated with cement.

Above: A dihedral jig assists wing dihedral





Below: The fuselage, undercarriage, tail assembly and propeller unit

Hold the wing in position with an elastic band that is neither too tight nor too loose. A loose band will allow the wing to shift in flight and this can rapidly spell 'trouble'! Be certain to use *hard* grade balsa for the motor stick. Use a 10 in. loop of $\frac{3}{16}$ in. rubber strip for short test flights, but when your model is well trimmed install a 15 in. loop of $\frac{3}{16}$ in. strip and use an 'S' type hook with a geared winder for longer, higher flights. Always rub rubber-lubricant on to your motor before winding up.

The second sequence of sketches shows the points you should check before test gliding your model. Choose some soft or long grass for your first flights and a calm day. Wind always makes trimming, even for the expert, a more difficult and dangerous business. You will see that it may be necessary to bend or warp the wing and tail plain surfaces. Do this very gently. Slightly moistening the wood helps to prevent the wood splitting. When you have obtained a good flat glide (model launched from approximately shoulder height should glide straight down to land about 10-12 yds. ahead of the launching point) you can begin to put trims on the rubber motor for some power-on flights. Check any errors after each flight, making all adjustments by *small* degrees. SKYFLY is lots of fun—so why not build *yours* tonight?

Materials List

1 length $\frac{1}{4}$ in. by $\frac{1}{4}$ in. by 13 in. hard grade strip balsa.
1 sheet $\frac{1}{16}$ in. by 3 in. by 24 in. medium grade sheet balsa
1 small piece $\frac{1}{4}$ in. sheet balsa.
1 sheet $\frac{3}{32}$ in. by 3 in. by 4 in. sheet balsa.
1 20 s.w.g. brass bush.
2 20 s.w.g. cup washers.
12 in. length 20 s.w.g. piano wire.
Small length $\frac{1}{2}$ in. wide linen tape.
1 K.K. 5 in. diam. plastic propeller.
1 pair K.K. streamlined wheels (alternatives to balsa).
Length of thread.
1 tube balsa cement.
1 3 in. long approx. rubber band.
2 pins.
1 small bottle clear dope.
1 tube rubber lubricant.

Fin here

Tailplane 1/16 sht
Bevel all edges

A — A Join to A A to complete motor stick

Cut

Tape under wing centre section

Skid 1/16 sht

Rear hook 20.s.w.g. wire

Fin 1/16 sht

Pin

Y

Wing mount pieces

2 rqd. 3/32 sht

Wing 1/16 sht
Note section on side view

Centre line

A — A

Wing

Y

X

Pieces X & Y 1/16 sht

Power 1 loop 3/16 strip rubber 10" long

For longer flights 1 loop 3/16 strip rubber 15" long.

Motors must be lubricated

BALANCE POINT

X

Pin

Motor stick 1/4 sq hard balsa

N.B. ALL OTHER PARTS MEDIUM BALSA

Undercarriage 20.s.w.g. wire.

V notch

Linen tape or silk both sides

Wing dihedral jig 1/8 sht.

Top

1/32 ply centre discs

Wheels shaped from 1/2" sht (or use 1" dia. plastic)

Give entire model one coat of clear dope.
R.A.F. markings in ball point or felt tip pens.

Driving shaft 20.s.w.g. wire.

20. gauge brass bush

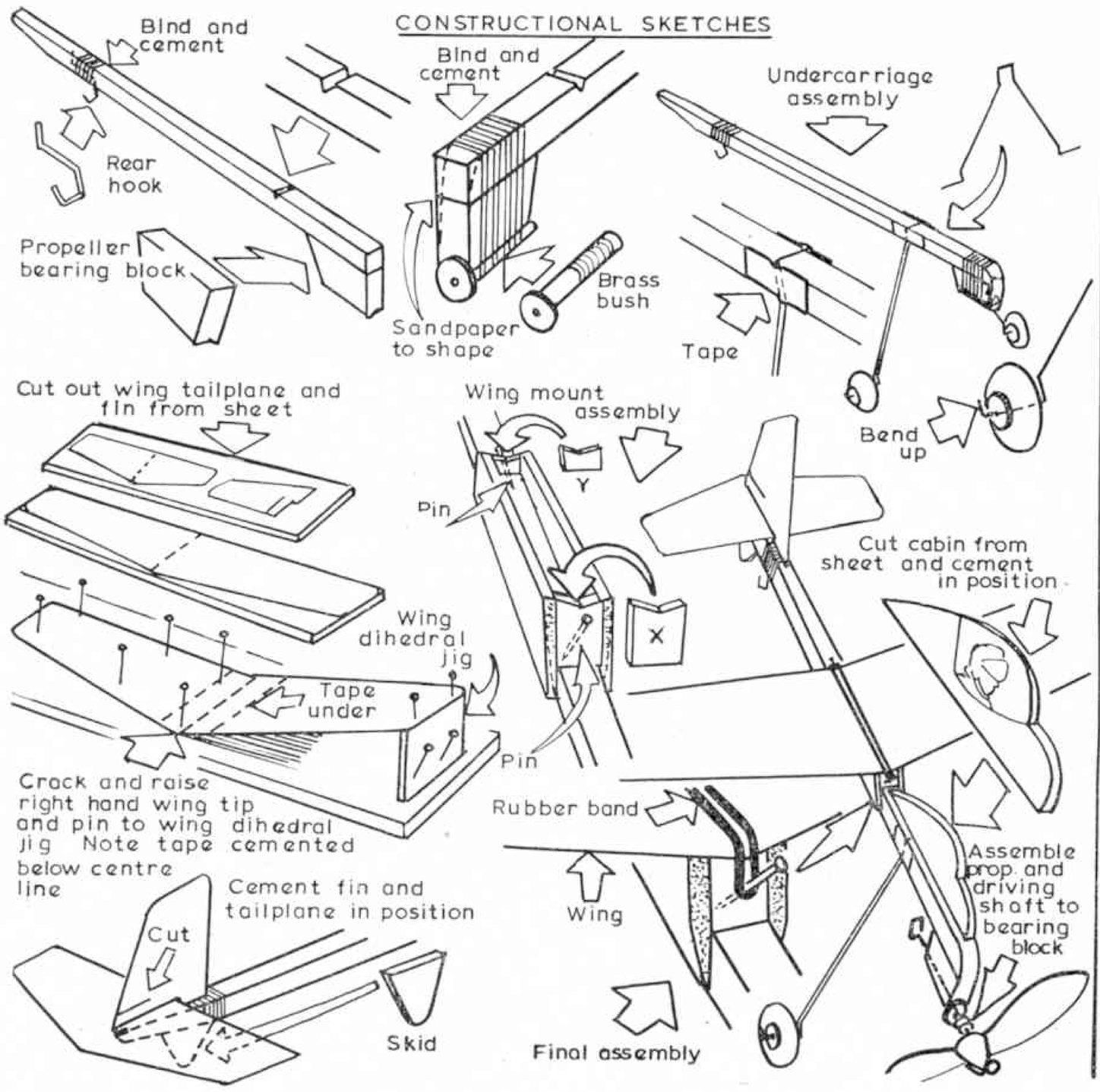
Prop bearing block 1/4 sht.

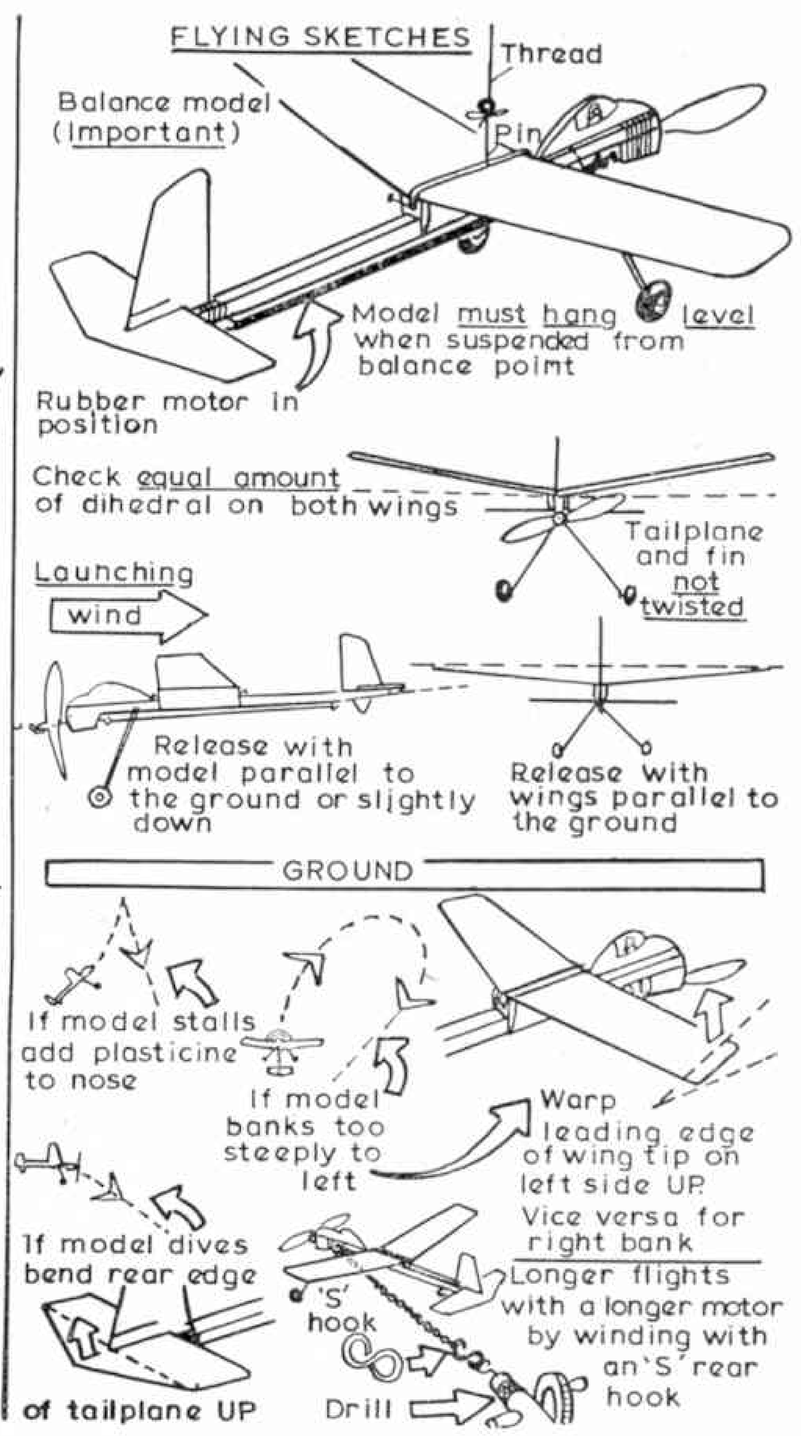
2. 20. gauge cup washers

5" dia. KK. plastic prop.

Cabin 1/16 sht.

RM. 1965



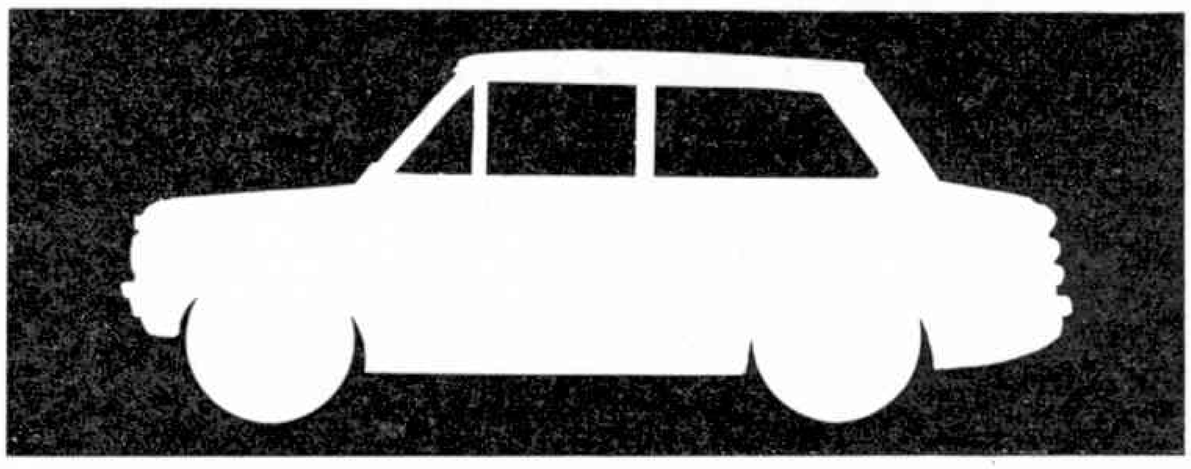


car outline COMPETITION

50 Dinky Toy Models to be won!

To:—Meccano Magazine: Competition D, St. Alphage House, Fore Street, London, E.C.2.

Fill out the form and send it to us. The names of the senders of the first 50 correct answers will be published in the next issue of Meccano Magazine. The winners will then be expected to write to us to claim their prize. The competition will be judged by the editor of Meccano Magazine. His decision will be final and no correspondence can be entered into.



The vehicle illustrated is:—

.....

.....

NAME .....

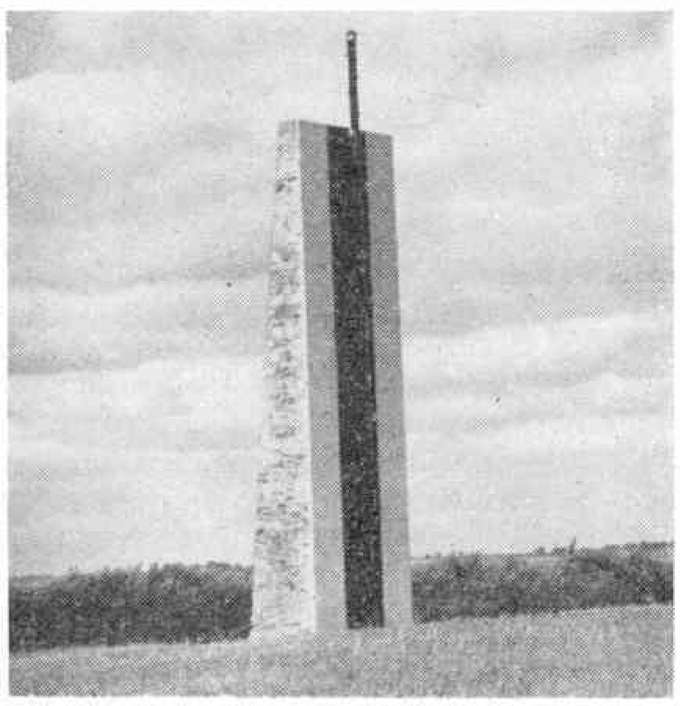
ADDRESS .....

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mailbag

■ **NAUTICAL MILESTONE.**—We often see a variety of milestones around the countryside, some of them very ancient, some humorous. But we do not often see a Nautical milestone, a photograph of which I enclose.

It is one of two which are on a high headland near Looe, in Cornwall. Two others are a measured nautical mile away at Talland, near Polperro. When boats or ships at sea get the two sets in alignment, they are then able to set their logs in agreement.—*Mrs. N. W. Kieffer, Bristol.*

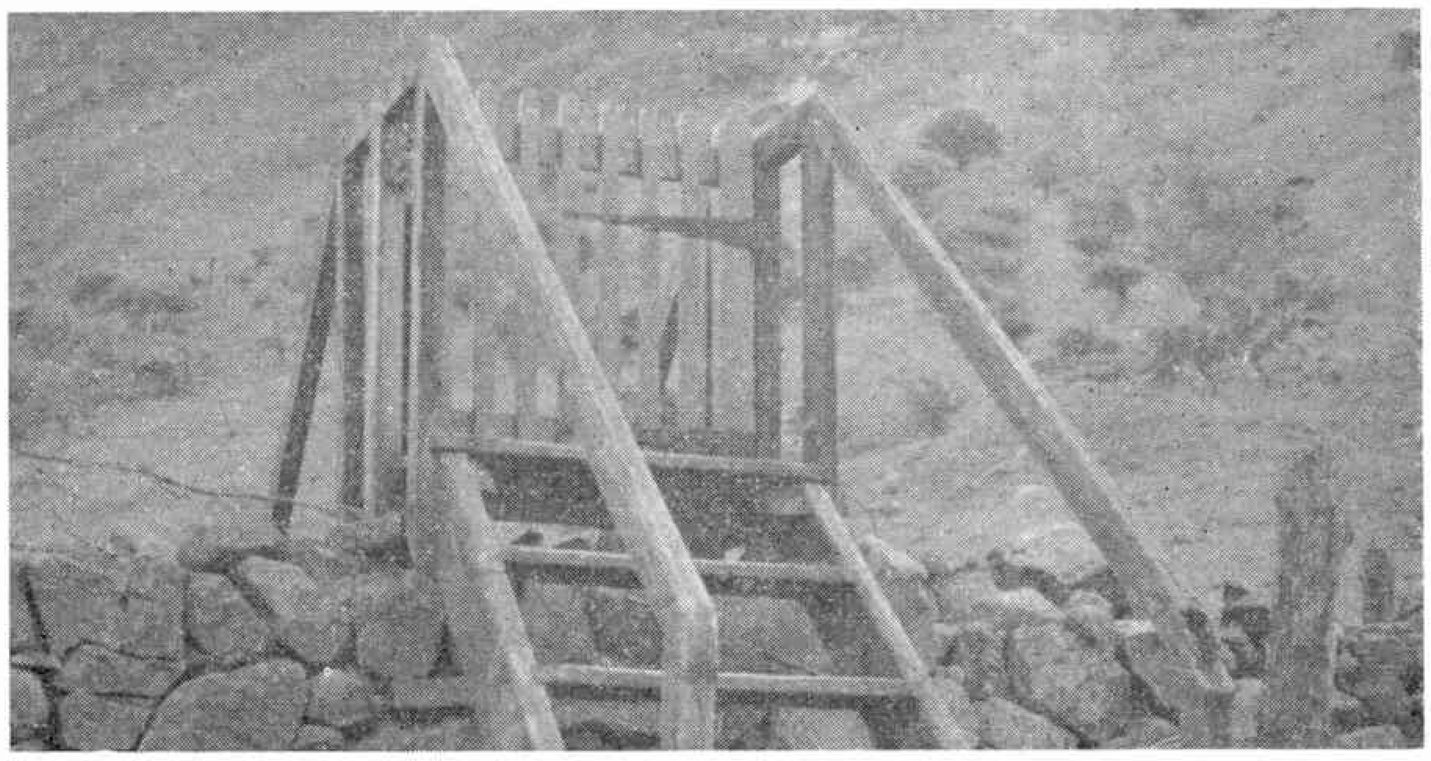


■ **STUPID ANIMALS?**—Sheep are notoriously stupid animals, but a shepherd in Wasdale in the Lake District told me of one of his flock which certainly had intelligence.

It had learned how to climb a stone wall by means of a 'ladder stile' used by climbers and hikers and was also endeavouring to teach the knack to its two lambs! The sheep was only prevented from straying when the shepherd fixed a gate on the platform of the stile.—*L. Gowan, Newcastle-upon-Tyne.*

■ **LAXEY WHEEL.**—If the Manx government had not recently bought the Big Wheel at Laxey it would have fallen into decay and eventually been demolished. The Wheel has survived for 111 years and the price paid for it was £5,000. The object of the Wheel was to pump water from the thriving lead mines, It made 2½ revolutions each minute in which time 250 gallons of water were hauled from a depth of 1,800 feet. The Wheel is 72½ feet in diameter, 228 feet in circumference and six feet in width; it has 48 spokes, 192 waterbuckets, each holding 20 gallons of water. Its drawing strength is 200 horse-power. A malleable axle weighs 10 tons and the overall weight is hundred tons.

At the south end of the stone encasement is the largest iron casting in the world of the Three Legs of Man—and *that* weighs one ton.—*Fred J. Chapple, Port Erin, I.O.M.*



use meccano magazine

Classified Columns for your Sales/Wants/Swops

MECCANO MAGAZINE is the best medium for selling your old train set, stamp collection or any other item which is no longer of use to you but of possible use to others Also, if you are short of an item for your collection, why not search for it by advertising in Meccano Magazine?

The cost is 4d. per word. (minimum 4s. 0d.) No box numbers. No trade ads.

Simply write each word of your advertisement in the spaces below (capital letters), cut out this quarter page and send it with your remittance to:— Classified Advertisement Dept., Meccano Magazine, St. Alphage House, Fore Street, London, E C.2.

Sales/Wants/Swops (*Strike out which is not applicable*)

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24

If you require further words please continue on another sheet of paper.

Advertisement Enquiry Service

September

A list of advertisements in this issue of MECCANO MAGAZINE is given below. If you would like further information on any of the products and services advertised, please tick in the appropriate space, fill in the coupon and return to us.

- ☐ Archer
- ☐ Ashford
- ☐ Bagnall
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- ☐ Beck
- ☐ Bell
- ☐ Birkdale Stamps
- ☐ Bold & Burrows
- ☐ H.M.S. Conway
- ☐ Coventry Eagle (Falcon)
- ☐ Dinky Toys
- ☐ Foton
- ☐ Gamages
- ☐ Granta Canoes
- ☐ H.A.C.
- ☐ Hammant & Morgan
- ☐ Hattons
- ☐ Harrow Model Shop
- ☐ Hinton
- ☐ Hobby Supplies
- ☐ Johnsons of Hendon
- ☐ KeilKraft
- ☐ King Charles
- ☐ Lang
- ☐ Lambert
- ☐ Lotts
- ☐ National Model Show
- ☐ Malins
- ☐ Meccano
- ☐ Mellor
- ☐ Midland Bank
- ☐ Miniature Autoworld
- ☐ Model Shop (Lancaster)
- ☐ Philips Electrical
- ☐ Pritchard (Peco)
- ☐ Proops
- ☐ Playcraft (Champion)
- ☐ Plastic Meccano
- ☐ Playdoh
- ☐ R.A.F.
- ☐ Reardon Smith
- ☐ Revell
- ☐ Rovex
- ☐ Scalextric
- ☐ Seccotine
- ☐ Southgate Model Shop
- ☐ S.R.M.
- ☐ Super Shells
- ☐ Taylor & Hindley
- ☐ Victory Industries
- ☐ Webley & Scott

To: Meccano Magazine, St. Alphage House, Fore Street, London, E.C.2.

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any problems

Have you a problem—in science, history, literature or any other subject—to which you cannot find the answer?
Ask Tom Sheridan and he will do his best to answer it. Questions should be sent on postcards bearing your full name and address, but these will not be published if you put them in brackets and just add your initials. Address them to Tom Sheridan, Meccano Magazine, Thomas Skinner and Co. (Publishers) Ltd., St. Alphage House Fore Street, London, E.C.2.

Long livers

Q. *What is the longest time anyone has lived?—T. Scatchard, Dewsbury, Yorks.*

A. The famous Turk, Zaro Agha, was reputed to be 160 when he died in 1934. Louisa Trusco, an Englishwoman who died in 1780, was said to be 175; and a Chinese labourer, Li-Chung-yun, was reported in 1930 to have reached the age of 252. There are scores of cases of people who claimed to have lived over 120 years, but many of them are suspect owing to the unreliability of records. Soviet scientists are now making a special study of people living in the Caucasus, where unusual longevity is comparatively common. One man who died recently was reputed to be 157, and another, Shirali Baba Muslimov, has convinced the gerontologists that he was 160 last birthday.

Fishing champions

Q. *Which nation catches the most fish?—R. F., Grimsby.*

A. Of a world's record catch of 46,600,000 tons last year, Peru hauled in 6,901,300 tons. Previously, since 1948, Japan had been the top fishing nation. Only in the last 15 years has Peru established herself in this field; today, fishing and fish-meal production is her biggest single industry.

Tiny TV

Q. *Will a wrist-watch television set ever be possible?—'Fancy Free', Romford, Essex.*

A. It's more than likely—in the next ten years, according to technicians. Electronic circuits small enough to fit into a TV set of wrist-watch size are now feasible. Still to be solved is the problem of reducing a TV tube to the dimensions required. But glass containing minute traces of metal, in which a varying glow can be induced by passing a small current through it, promises development of a miniature screen on which pictures can be beamed.

Nature's gushers

Q. *How many volcanoes are there?—David Stevenson, Three Bridges, Sussex.*

A. It is estimated that there are between 300 and 400 active volcanoes, about a third of which are situated on the continents, mostly about the borders of the Pacific and the mountains of Central America. They are found in the earthquake zones, where the Earth's crust is still unstable, and are caused by the pressure of overlying rock on gases which break through to the surface when a shift or fissure occurs. A hot solution of minerals and gases produced from previously solid material is erupted, with watery vapour, cinders and rock fragments. Many islands are nothing more than the crests of volcanic cones, and there may be many more below sea-level.

Stable tips

Q. *Can you put me on to any books about the care and riding of horses and ponies?—A. Corkhill, Ipswich.*

A. R. S. Summerhays' *Encyclopaedia for Horsemen* (Frederick Warne, 21s.) contains over 3,500 entries covering every aspect of equestrianism, with information on different breeds, the treatment of ailments, etc. There are 27 longer articles by specialists, and an extensive list of other books on the subject.

Odours to order

Q. *Is it true that artificial odours are now being applied to many products to make them more saleable?—'R.S.V.P.' Winchester.*

A. Quite true. Plastic flowers can be given a permanent scent, and paint, diesel oil and lighter fuel are now being synthetically treated to give them a pleasant odour. Car upholstery can also be made to smell like fresh leather. Proprietary Perfumes Ltd., of Ashford, Kent, has a laboratory in which chemical "odorants" are produced by the ton from petroleum, coal and turpentine. Examples are the smell of fresh bread to spray around bakers' shops, a "creamy" smell for dairies, and a "piggy" smell to make pigs feel at home in new sheds. Even kippers can be made more appetising by wrapping them in material impregnated with the right smell.

Tape talk

Q. *I want to start 'tapesponding.' Are there any clubs I can join to make contacts?—J. L. P., Malling, Kent.*

A. You can take your pick of four, all with international links. They are World Tape Pals, 45 Boundary Road, London, S.W.19; the Voicespondence Club, 27 Royal Oak Road, Bexleyheath, Kent; World-Wide Tape Talk, 35 The Gardens, Harrow, Middlesex; and the International Tape Fellowship, 94 Dupont Road, London, S.W.20.

Weighing the world

Q. *How much does the world weigh; who weighed it, and when?—Anthony Iveson, Tavistock, Devon.*

A. The Earth's weight is calculated by measuring its gravitational attraction on a small sphere and comparing it with the attraction of a larger sphere, whose weight is known exactly, on the smaller one. This method was first used in 1798 by the great English physicist Henry Cavendish, though the experiment was planned and the apparatus designed by the Rev. John Mitchell, inventor of the torsion balance. The result he obtained was so accurate that nobody improved on it for a century. Two independent calculations give the mass of the Earth as the equivalent of 5,885,516,000,000,000 (nearly 6,000 million million) tons.

Presley's progress

Q. *Did Elvis Presley really start his film career in Westerns?—'Presley Fan', Cheshunt, Herts.*

A. Not exactly. But his first film, *Love Me Tender*, shown in 1956, was a Western starring Richard Egan, and was hardly the right vehicle for the singer. His second picture, *Loving You*, was better received; and *Jailhouse Rock*, in which he appeared with Judy Tyler really put him on the road to becoming a screen personality. His fourth film, *King Creole*, was a big success in 1958.



Elvis Presley and Judy Tyler in "Jailhouse Rock"

MAP READING

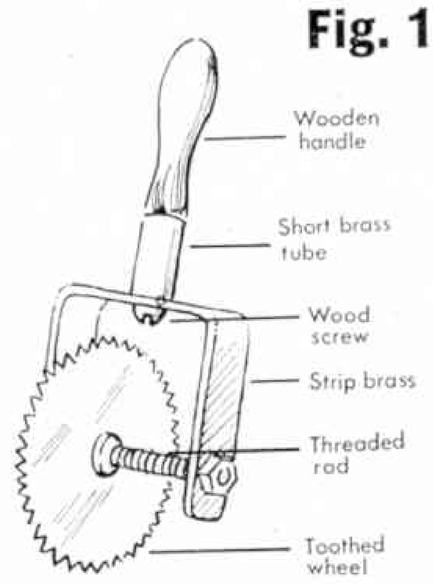
MAPS are not strictly necessary for the cyclist — but without them, he will miss half the pleasure of his trip. Signposts can certainly get you from place to place, but you may never know that there was a beautiful lake just the other side of that field or that there was a ruined castle half a mile down the lane . . . . unless you read a map.

Scale is probably the first factor considered by the cyclist buying a map. Motorists may use a scale of 10 miles to the inch or even smaller, but the motorist who intends leaving the main roads will probably prefer something about four miles to the inch. The cyclist, however, works in a smaller area and needs to know more about the country through which he intends to ride. A scale of ½ in. to the mile is a very good choice and there is a full range of maps of this scale produced by Bartholomews. These have contour lines marked on and the hills and valleys are further defined by colours, ranging from pale green at sea level to dark brown in the mountains.

Even more detailed maps are the wonderful Ordnance Survey range which are 1 in. to the mile and often show features as small as a single house. Ramblers always prefer these maps for obvious reasons, but so do many enthusiastic cyclists. The chap who wants to get away from it all and explore the tracks and very minor roads will find these invaluable.

Whatever type of map you use, being able to estimate distance accurately is important. Many modern maps have distances between towns marked on, but where they are not marked there are a couple of ways by which the distance along a winding road can be accurately measured. The easiest is to use a length of thread. Put one end at your starting point and lay the thread along the route on the map until the destination is reached. Then lay the thread used along the scale at the bottom of the map and measure off the mileage.

Fig. 1



Episometer

Another method is to use a strip of paper with a straight edge. Start at one end and lay the paper along the route until a bend is reached. Make a mark here and turn the paper round the bend. Then make another mark at the next bend. Carry on like this until the whole route is covered. Then again measure off the mileage on the scale at the foot of the map.

Another method is to use a pair of dividers set at, say, ½ in. Walk these along the route counting off the miles as you go.

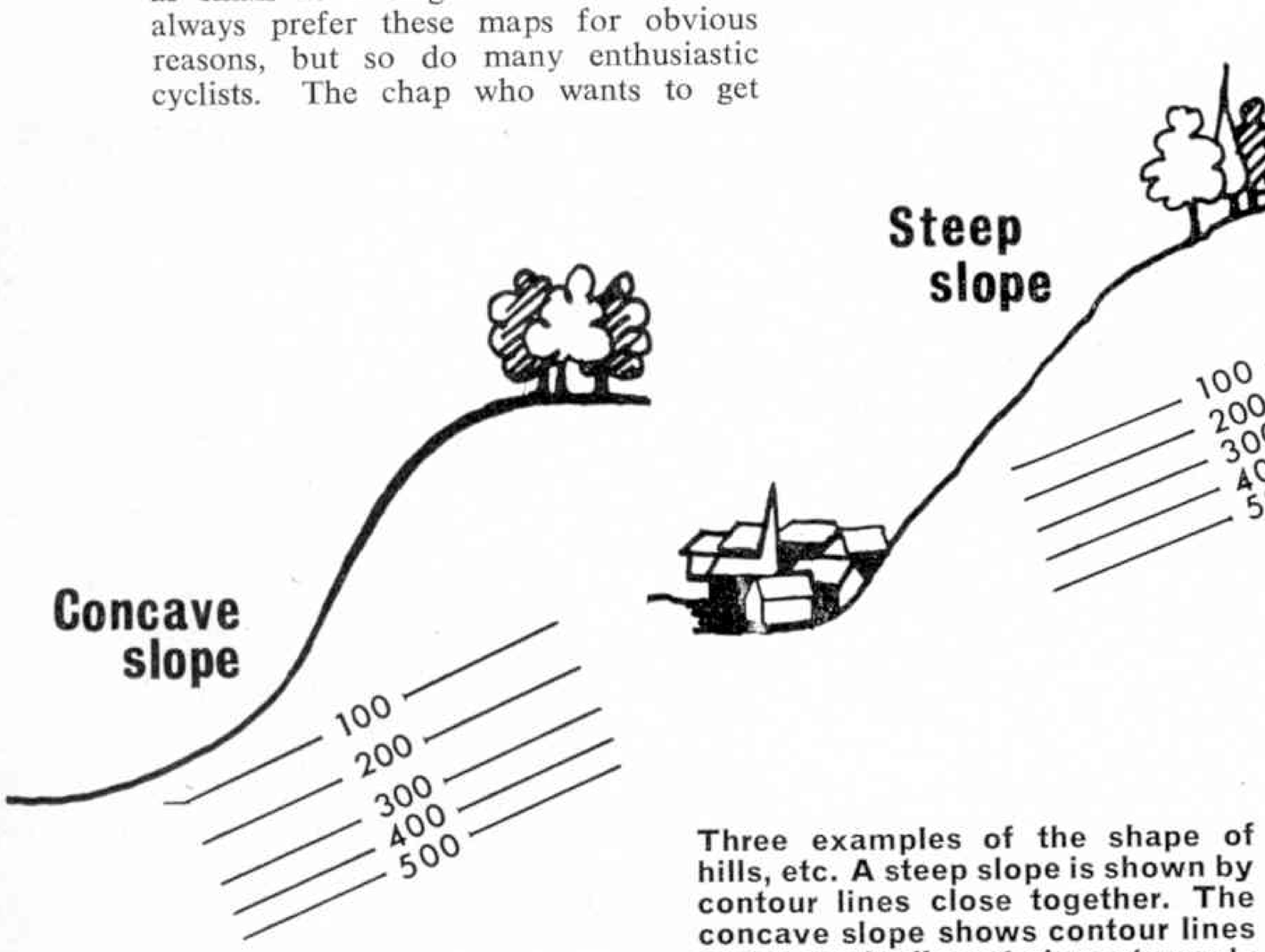
There is a special tool made for measuring distances on maps. It is called an episometer but in spite of its impressive name is really a very simple device. You could make one on the lines shown in Fig. 1 quite easily. In use, the toothed wheel is positioned hard up against one end of the thread. It is then run along the route. Reversing the wheel along the scale at the foot of the map will give the distance in miles.

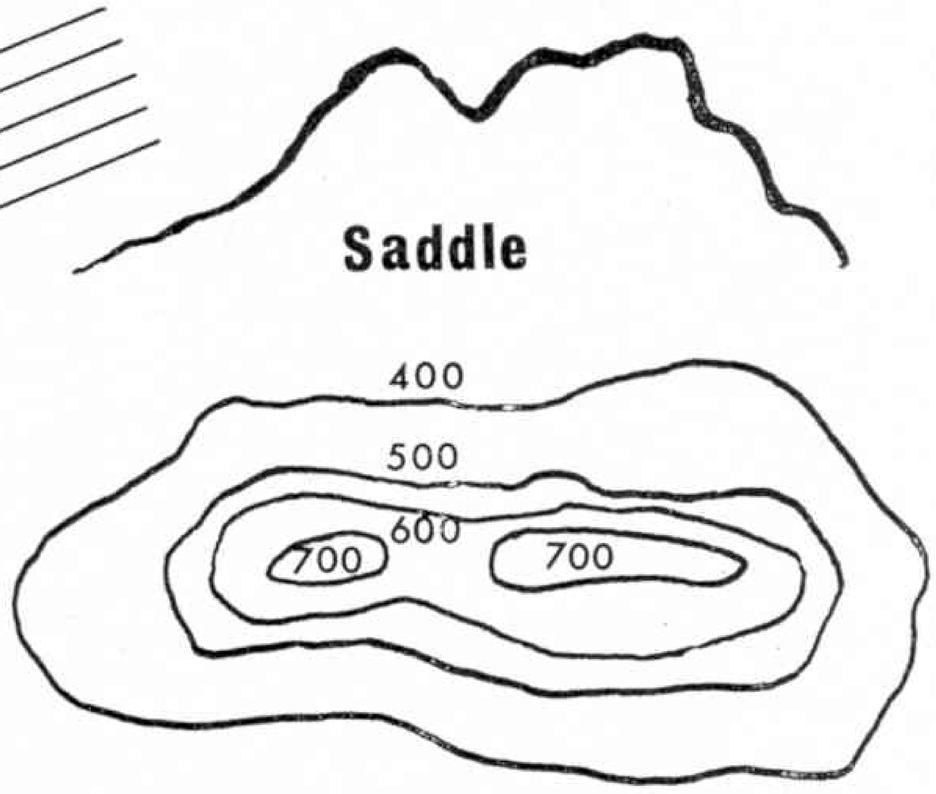
Contour Lines

If you are fortunate to have some really wild countryside nearby — the Yorkshire dales, the Welsh mountains or the Scottish Highlands—map reading can make an immense difference to your appreciation of the countryside. But, make no mistake, recognising and positively identifying mountains from the map is not so easy. The chief aids to this are the contour lines, which do far more than just indicate a hill or valley. Some examples of the shape of hills, etc., are given below. A steep slope is shown by contour lines close together. Obviously the ground rises 100 feet in a very short horizontal distance—hence the contour lines are shown close together. A gradual slope means contour lines far apart. If the lines all merge and are shown one above the other, it indicates a vertical cliff. A few other typical hill formations are shown below. (See Fig. 2).

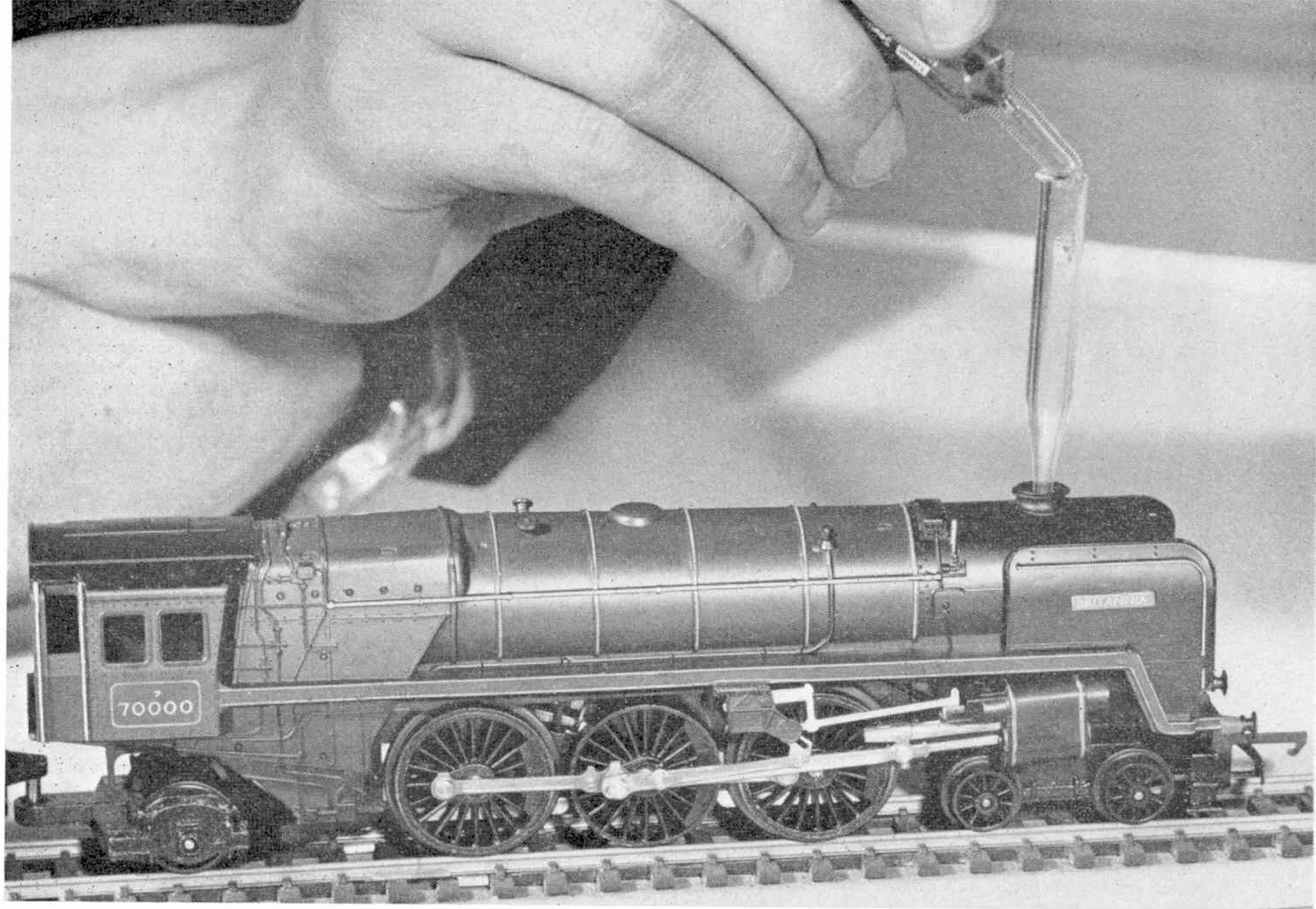
Map reading has its utilitarian advantages for the cyclist but, much more than that, it has a fascination all its own. The cyclist who learns to use a map intelligently, not only enjoys his cycling more but has started a brand new hobby.

Fig. 2





Three examples of the shape of hills, etc. A steep slope is shown by contour lines close together. The concave slope shows contour lines which gradually get closer towards the top.



Synchrosmoke and Triang-Hornby

ONE of the characteristics of the steam engine, previously impossible to reproduce in model form, was the steam and smoke that has always formed an essential part of the attraction that the steam engine has for model railway enthusiasts. Tri-ang-Hornby owners are however, fortunate in that many of the locomotives in the range are now fitted with smoking units—indeed Tri-ang were among the first to fit a smoking unit to certain locomotives in their range. Recently the concept of smoke units was perfected with the introduction of 'Synchrosmoke', which is now fitted to four locomotives in the Tri-ang-Hornby range of engines. This revolutionary unit differs from the previous smoke unit in that it not only puffs out smoke as before, but in addition synchronises the puffs with the revolving of the wheels. Therefore, the faster the locomotive travels, the more frequent are the puffs from the locomotive chimney.

The tremendously powerful 'Britannia' locomotive, a model of the type introduced by British Railways in 1951, is one of the four locomotives to be fitted with 'Synchrosmoke'. Fifty-five of these 4-6-2 Pacific locomotives were built at Derby works, and the Tri-ang model represents the engine bearing the name of the class—No. 70000 'Britannia'. The remainder of the class were named predominantly after famous British figures, although a large number bear names such as No. 70024 'Vulcan', and No. 70022 'Tornado'. The locomotives can today be found working a wide variety of trains — from express passenger to local goods. The highly detailed boiler and Walschaerts valve gear make it a useful addition to most layouts.

The two pantograph locomotives in the Tri-ang range are, of course, designed to be used in conjunction with the Tri-ang overhead catenary system, which I hope to deal with more completely in a future article. One of the pantograph locomotives, not as yet available, is a model of the E3000 series of locomotives (R753) made for the Liverpool-Euston main line, which is electrified on the 25 K.V. catenary system. The other locomotive is a model of the Co-Co E.M.2 electric locomotive (R351) introduced in 1954 for the Manchester-Sheffield-Wath electrified lines on the Eastern Region. This section of line includes the famous Woodhead Tunnel, through which electric locomotives only are allowed to travel. Both engines can be operated from the track in the normal manner, or from the Tri-ang catenary system. This arrangement is useful in that it allows two locomotives to be operated over the same stretch of line simultaneously, provided of course that one is collecting current from an overhead catenary, and the other from the track as usual.

Also listed in the Tri-ang-Hornby catalogue is the English Electric type 3 diesel electric locomotive, which can be seen on almost every region of British Railways, performing all manner of duties, from shunting, to passenger and goods trains. The model, although not yet available, is an excellent reproduction of the real locomotive, which has the distinctive English Electric bull-nose appearance. The series were introduced in 1961 by the English Electric Company, and to date 218 have been built.

Originally from the Hornby-Dublo range and now in Tri-ang-Hornby, is the Co-Bo locomotive, a model of the type 2 series of engines built by Metropolitan Vickers for British Railways in 1958. The class of engines, numbering twenty, were first designed for use on fast freight services between London and the North, notably on the 'Condor' train. They were not, however, found powerful enough for this, and were given the work of operating freight trains in the north of England, which they are still engaged in doing. The sturdy construction and unusual appearance of the model help to add that little variety to every stud of diesel locomotives.

One step further

The 'Synchrosmoke' unit mentioned at the beginning of this article operates by the action of a special smoke oil on a heater element situated at the front of the locomotive chassis. This principle forms the basis on which all smoking units work. 'Synchrosmoke' however, goes one step further by actually synchronising the puffs of smoke with the driving wheels of the locomotive.

The smoke oil which is dropped down the chimney of the locomotive falls on to a fibre wad which absorbs it. The oil is then vaporised by the heater element to form the smoke, which is then puffed up the chimney by the action of a piston moving along a cylinder. This piston is connected to a gear wheel which is turned by the worm on the main driving shaft of the motor, which also drives the worm wheel on the driving axle.

Before running a locomotive fitted with 'Synchrosmoke', seven or eight drops of smoke oil should be poured into a funnel placed on top of the chimney, to fall on the cover of the smoke generator beneath It is important, when doing this, not to overfill by allowing more than the suggested number of drops of smoke oil to fall on the smoke generator, because any surplus will spill over the locomotive body and chassis. In the case of the 'Britannia' (R259S), and 'Winston Churchill' (R356S) locomotives, five more drops may be added to give a longer running period between refills. Blow gently on to the top of the filling funnel to clear any residue and then remove. The locomotive may then be run for a few seconds to warm the heater element up, and then smoke should begin to appear from the locomotive chimney.

By Mike Rickett

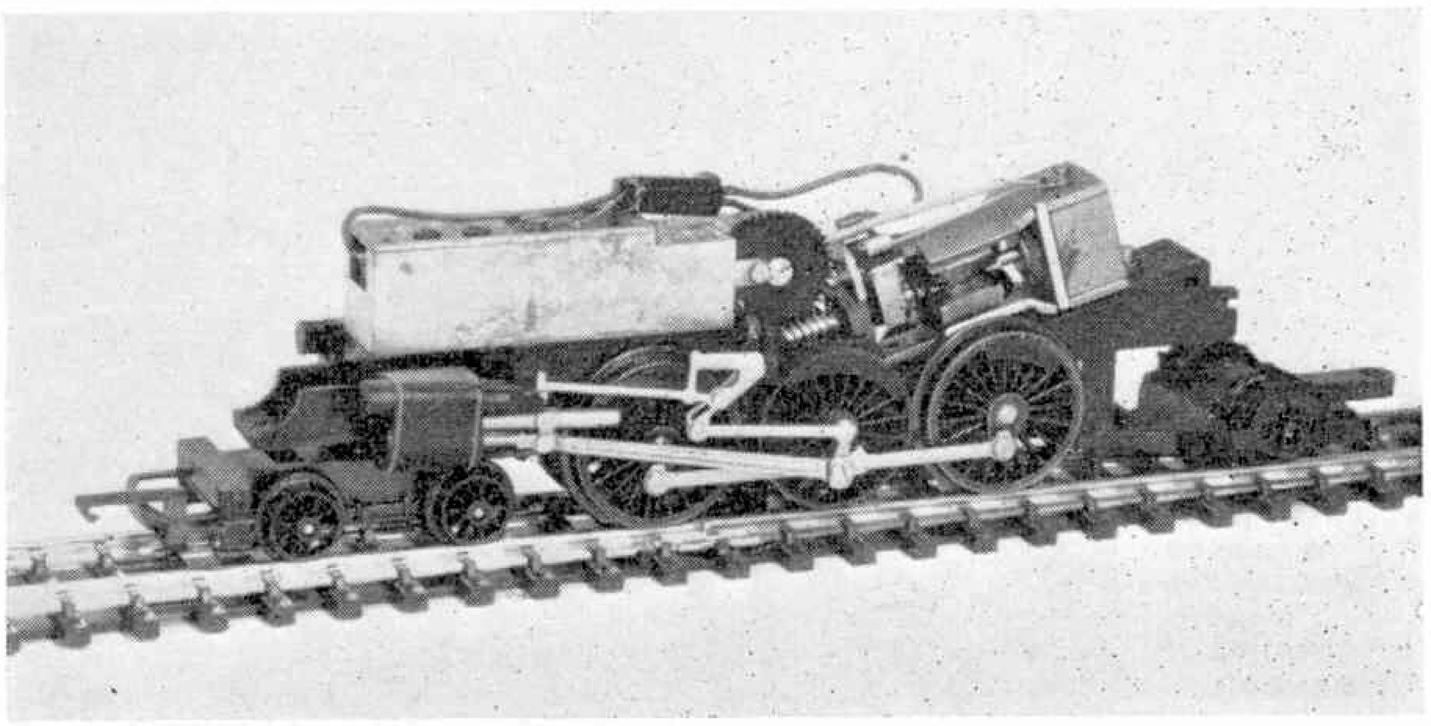
You will find that although the smoke generator gives the most spectacular results when the locomotive is running at high speed, the unit will continue to operate at the lowest of speeds, although the volume of smoke will be reduced.

The smoke unit is quite simple in construction, and very little can really go wrong with it. If, however, it should fail to operate after an extended period of use, it is possible that the heater element has become burnt out, and when this happens it should be replaced by a new element available separately from Tri-ang, under reference number X549. When fitting an element, the body of the locomotive should first of all be removed from the chassis, and the lid of the smoke generator lifted off. On a few locomotives the lid is screwed into position but, on others, it is a press fit. Where the screw is fitted, it will be used to retain the whole smoke generator in position on the chassis, and care must be taken not to dislodge the unit whilst the screw is removed.

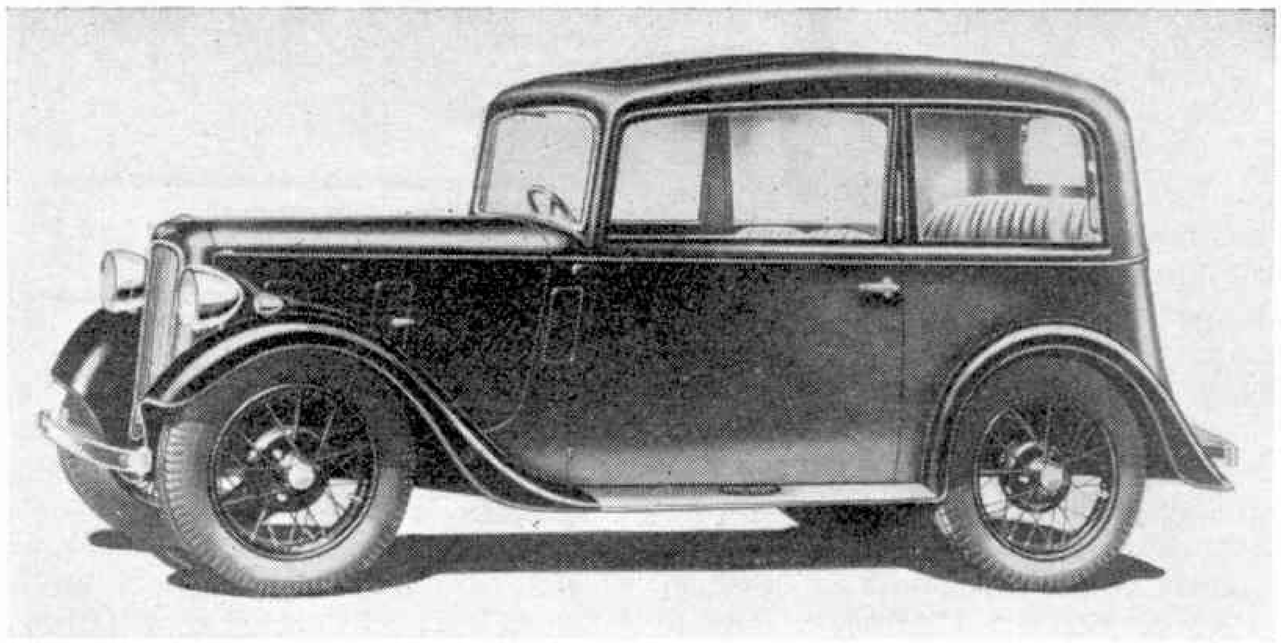
The element, which is contained in a cartridge type holder, can now be lifted out and the replacement inserted in its place. The element should be pressed well down into position to make good contact, before the lid is refitted. If a screw and brass eyelet is fitted these must also be repositioned correctly, before the body is refitted.

Spare parts for the smoke unit are available from any Tri-ang Service Agent, or from Rovex Scale Models, of Westwood, Margate, Kent.

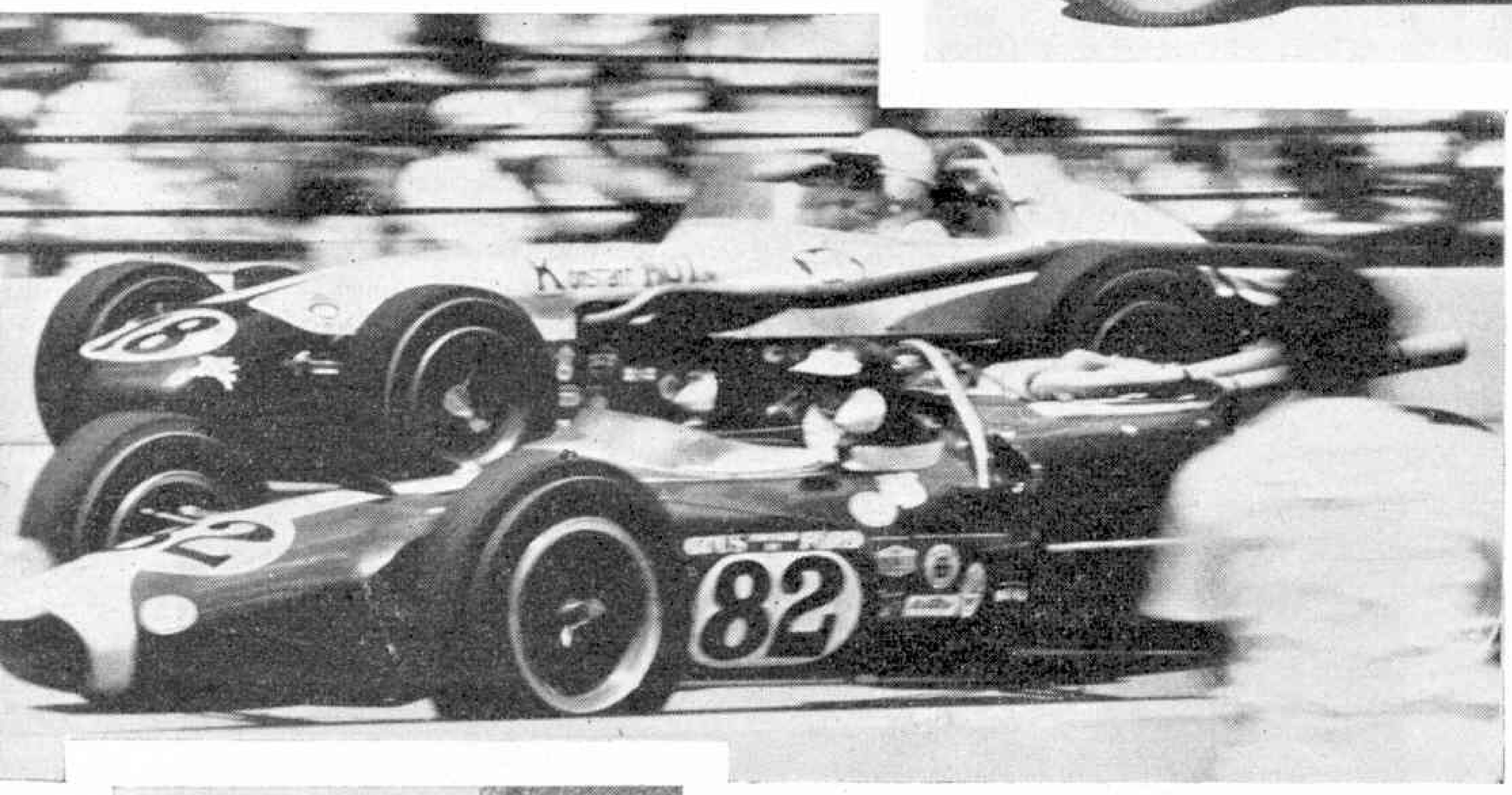




The picture at the top of the facing page shows the method of filling the Synchrosmoke unit. Above is the Britannia in action and the chassis with the body removed revealing the unit. Note the gear wheel running off the worm drive



Colin Chapman's first car was a 1937 Austin 7 saloon. This was "hotted" up and had smaller wheels fitted. It attained very high speeds

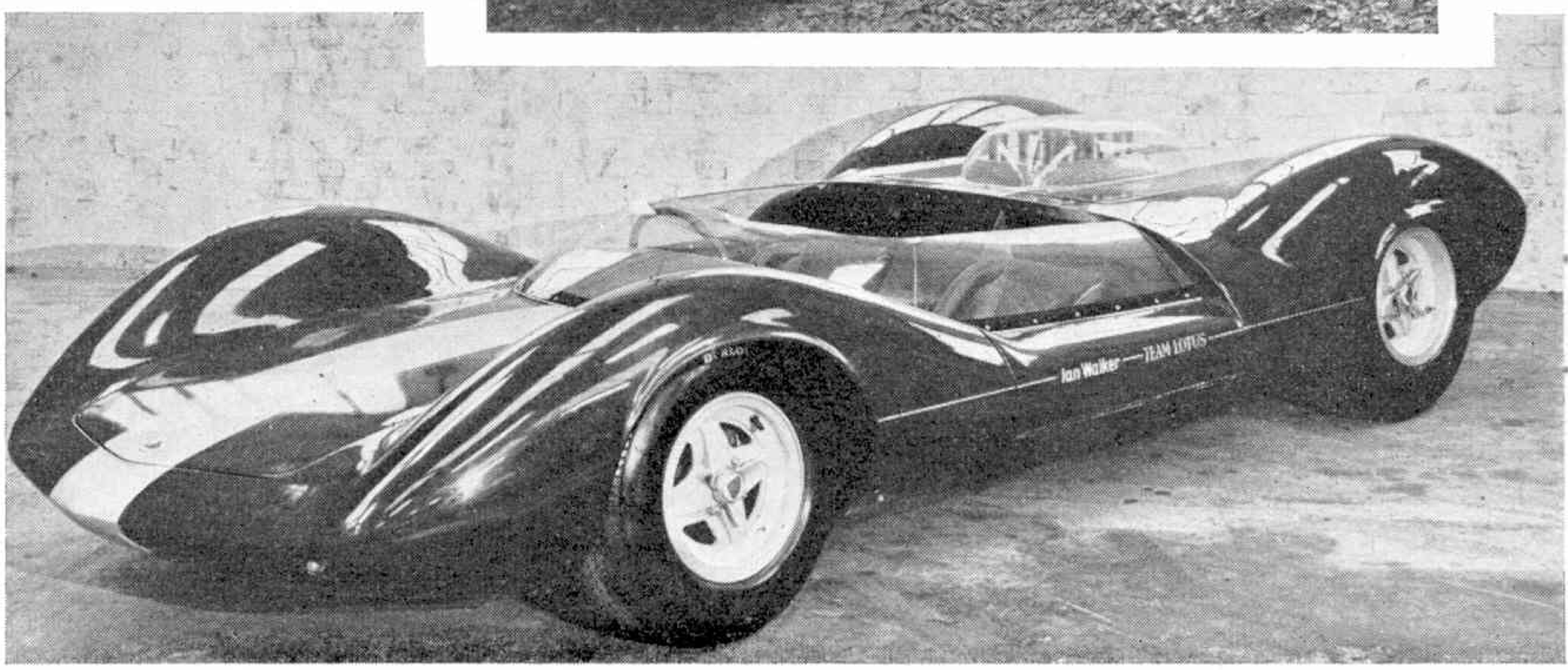


On the left is a shot of Jim Clark at Indianapolis. This was the end of an era. Clark's Ford powered Lotus (82) is seen hurtling past Knepper's big Offenhauser "Constant Hot Special" (18) along the pits straight. Below is a picture of a Lotus Elan 1600, one of Chapman's most successful ventures



The original Lotus Elite which was produced in 1959





The latest Sports-Racing car from the stable is the Lotus 30. Here it is seen bearing the famous insignia of "Team Lotus"

Colin Chapman's Inspiring Story

ARE there still opportunities in the motor industry for young men with the will to succeed? Certainly, if they have the drive and initiative of a Colin Chapman. Let the story of Colin Chapman and his Lotus cars provide inspiration for the future generation, for here is a man who, with little money, founded a world famous business on an old Austin Seven, discovered resting on a pile of bricks in a London garden.

In 1947 Colin bought a ten-year-old Austin Seven saloon which he decided to turn into a sports car. After being stripped to the bare frame and meticulously checked over, that Austin Seven was scraped, painted and modified beyond recognition, even the rear axle was turned upside down to help cure a vicious oversteer. Working tools were only the barest essentials, except for one "luxury", a 10s. 6d. Vernier gauge, hopefully believed accurate to two-thousandths. Colin's number one helpmate has been his wife, Hazel, and together they built the simple lightweight two-seater body of plywood and aluminium. This, then, was Lotus I, not a pretty car, but it could certainly go and its performance in trials and competition proved that Colin Chapman had a good recipe for lively motoring.

Man of Action

Colin Chapman, however, is essentially a man of action and he soon set about constructing his Mark II Lotus; again it was to be built largely with trials in mind, but this time with a more powerful Ford engine. Work on the new model was somewhat hampered when Colin Chapman was called up for service with the R.A.F.

By mid-1949 they found a Ford engine for £5, which had obviously seen better days, but it enabled them to complete the car, along with many other Ford components. The day arrived when Lotus II was a runner and Colin then decided to drive it back to his R.A.F. station in Shropshire. Then followed tests under the critical eyes of R.A.F. transport engineers, who soon confirmed Colin's secret misgiving, that a bigger, more powerful, engine was needed.

Combing garages and breakers' yards produced nothing suitable at the right price, until he heard about a Ford 10 which had been on fire; the engine had only done about 1,000 miles, but the insurance company wanted £30 for the car. The ingenious Chapman then sold that car, less engine, for £20, and so for a tenner he had an almost new 1172 c.c. Ford engine that could be made to produce the kind of power he was looking for. The car went like a bomb and could exceed 100 m.p.h. This remarkable performance set the chaps talking. They wanted a car that would go like the Lotus and were prepared to pay good money for it; suddenly Colin Chapman found himself in business.

In 1952 Colin formed his first company, Lotus Engineering, with its headquarters at an old stable behind a pub in Hornsey. Then came the first production Lotus, the Mark VI with multitubular space frame to save weight, the first Chapman frame. It proved to be an enormous success: the engine and other bits and pieces were Ford, because their spares were easier to obtain. To simplify "production", the cars were sold as "build-it-yourself" kits and there was no lack of orders. Within three years more than 100 Lotus had been sold.

During 1953 both Hazel and Colin raced a Mark VI with enormous success, which added to the firm's prestige; for the Mark VIII 1½ litre sports car that followed, Chapman enrolled the services of a de Havilland aerodynamist, Frank Costin. Later, his brother, Mike, was to join as development engineer. Meanwhile, in 1954 the Mark VIII was the first to show the Lotus paces in continental races, where it proved a good ambassador for the rapidly expanding Hornsey firm.

One of Lotus first big production successes was the 1216 c.c. Elite, costing less than £2,000, produced in 1959 to rival the Alfa Romeo coupé. This has since been followed by the Ford engined twin overhead camshaft Ford-Lotus Cortina and two-seater Elan sports car, both cars being virtually without rival in price and performance in their class.

During the past five years Team Lotus have introduced many new ideas to Formula One Grand Prix racing, in addition to "discovering" two new World Champion drivers—Graham Hill, who once worked for Lotus as a mechanic, and Jim Clark, who helped Team Lotus to become the World Champions of 1963.

New developments are taking shape at Lotus. Already, the recently acquired factory at Cheshunt is becoming too small. Now, Colin Chapman has been telling me about his future plans for a big new works in Suffolk, complete with full scale test track. Maybe to some it would seem hard to believe all this stemmed from an elderly Austin Seven, plus lots and lots of hard work, but not if you know Colin Chapman.

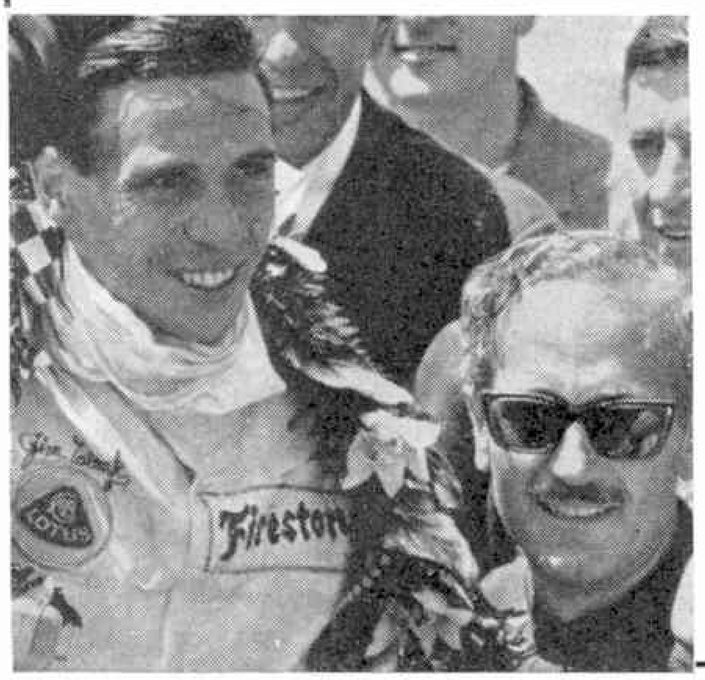
By Jerry Ames

Racing Notes

No single motor racing victory has ever earned such world wide acclaim as Jim Clark and his Lotus in America's Indianapolis 500 Miles Race. He becomes the first foreign driver to win this great track race since 1916, whilst the little green and yellow Lotus is the first British car ever to win. It did so at the record average of 150.686 mph.

The race is also a triumph for Ford whose V-8 double camshaft 450 bhp engines powered the first three cars home and ended the domination of the massive Offenhauser powered machines that have reigned supreme at Indianapolis for a quarter of a century.

After a triumphant tour of the United States the Indianapolis Lotus goes to a place of honour in the famous Ford Museum at Detroit. I believe its success will inspire Ford to enter Formula One Grand Prix racing; meanwhile Lotus and Jim Clark appear all set to end 1965 with yet another World Championship.



Jim Clark (left) being congratulated by Colin Chapman

By Spanner

Build this exciting model

TO most people, mention of a coal wagon conjures up visions of the flat-bed vehicles on which local coal merchants deliver household fuel in hundredweight sacks. There are big industrial wagons that carry several tons of loose coal to factories and power stations where it is stored in large quantities ready for use. As a result, special wagons have been designed which feature a built-in conveyor belt to facilitate speedy unloading and the Meccano model described here is based on such a machine.

Motive power for both the conveyor belt and the lorry, itself, is supplied by an E15R Electric Motor, mounted in the cab. You will see, incidentally, that an extension conveyor has been included. This does not actually operate, but is intended simply as a show-piece. To help in construction I have split the model into various sections as follows:

Chassis

The mainframe is constructed from two 24½ in. 'U' Girders, each built up from two 24½ in. Angle Girders 1 and 2 joined by a 21½ in. compound flat girder obtained from a 12½ in. and a 9½ in. Flat Girder. The flat girder is positioned so that its front end lies a distance of six holes from the front of the Angle Girders. Both 'U' girders are then connected by two 5½ in. Angle Girders 3.

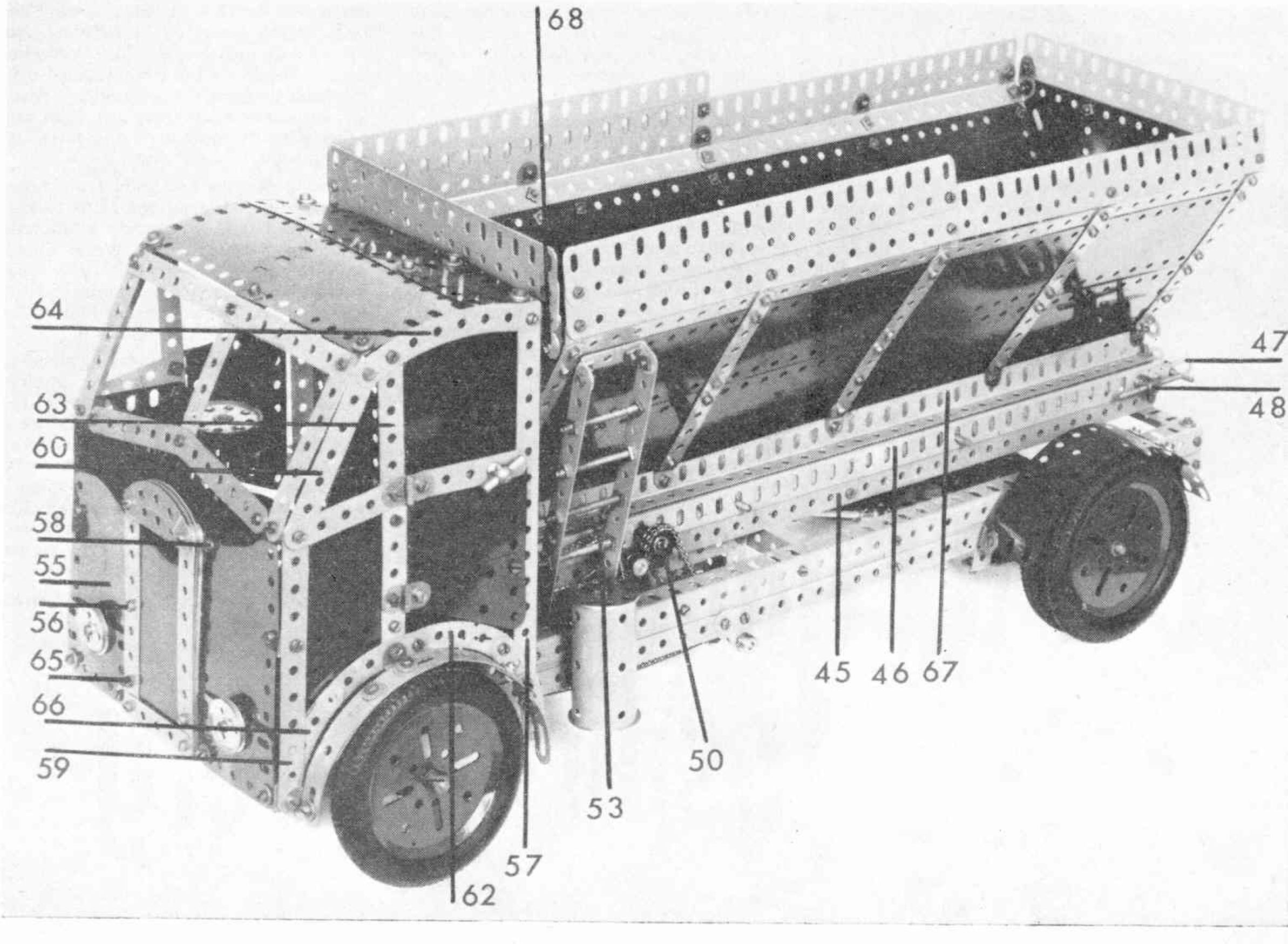
A 5½ in. Angle Girder 4 and two 7½ in. Strips 5, are fixed to Girders 2 by ¾ in. Bolts, but are spaced from them by three Washers and a Collar on the shank of each Bolt.

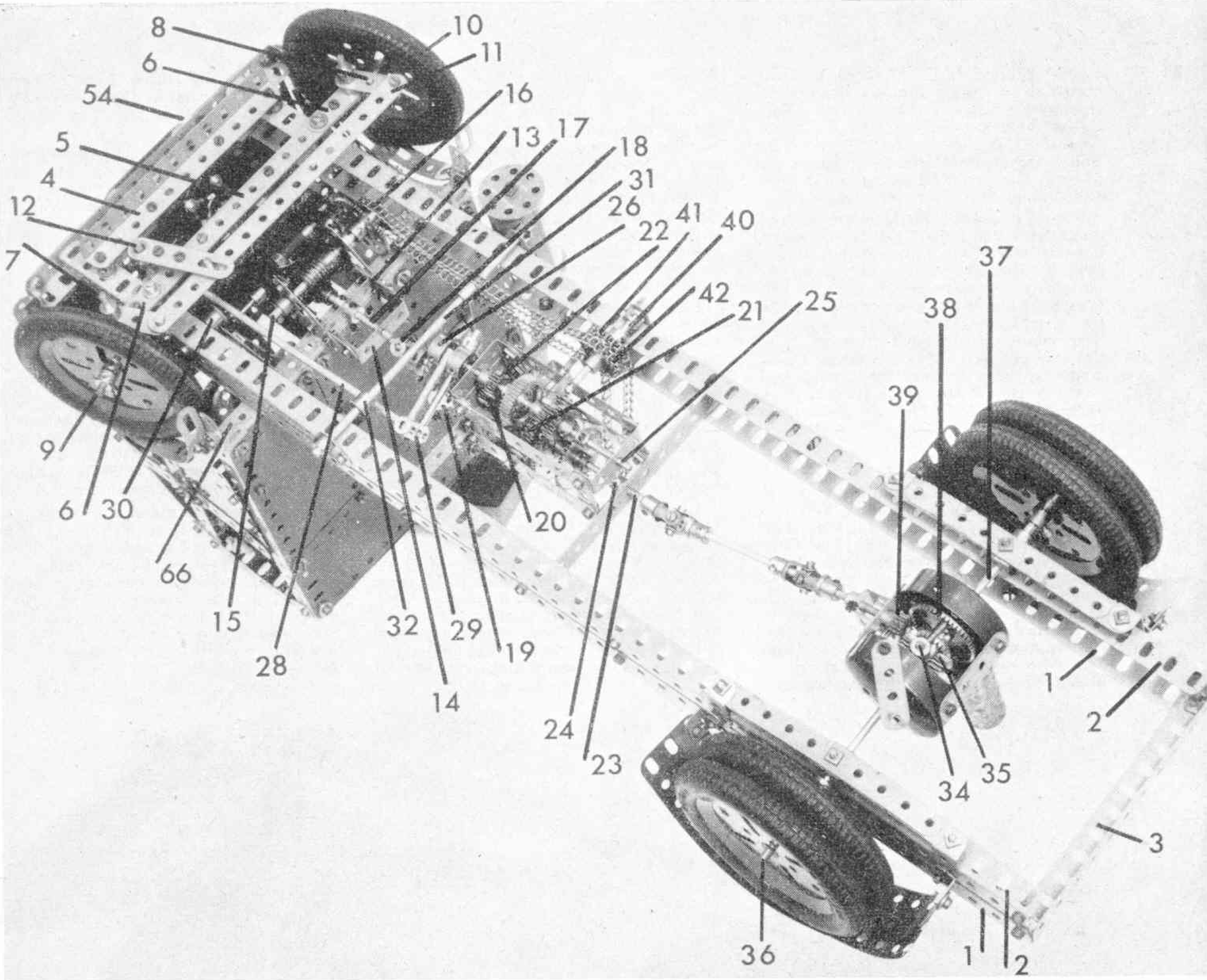
At each end of Strip 5 is bolted a Crank 6 supporting a 1½ in. Rod 7. Mounted on this Rod, in turn, is a Crank 8 and a Short Coupling. A 1½ in. Rod 9, carrying a 3 in. Pulley with Tyre 10 between two Collars, is fixed, then a 7½ in. Strip 11 is lock-nutted to Cranks 8. Two 1 in. Corner Brackets are bolted to the Angle Girders 1 and 2 to serve as bearings for a 6½ in. Rod 12 carrying a Crank extended by a 2 in. Slotted Strip and a 1½ in. Pulley with Tyre. A ⅜ in. Bolt is attached to the 7½ in. Strip by a Nut so that its shank engages in the slot of the 2 in. Slotted Strip. A Collar on each side of the Corner Bracket holds Rod 12 in position.

Power unit and gearbox

An E15R Electric Motor is bolted to Angle Girder 4 and Strip 5. The Motor side plates are extended by 1½ in. Corner Brackets 13 to which 1½ in. Strips, connected by 1½ in. by 1½ in. Double Angle Strips 14, are bolted. A ⅜ in. Pinion on the Armature shaft meshes with a 57-teeth Gear Wheel on a 3 in. Rod 15 that carries a Worm and a ¾ in. Sprocket Wheel 16. A 1½ in. Pinion on a 3½ in. Rod 17, journalled in Double Angle Strip 14, engages with the Worm. Also mounted on Rod 17 is a Short Coupling 18, with a ½ in. Bolt in its bore, and a Socket Coupling, a Compression Spring between the two. A 1 in. Pulley with Rubber Ring is fastened in the Socket Coupling, but is free to turn. The ½ in. Bolt in the Short Coupling drives the Socket Coupling.

Two rectangles, built from 3½ in. and 1½ in. Strips, are joined together by six 1½ in. by ½ in. Double Angle Strips, three at the front, one through the third





holes in the lower 3½ in. Strips and two at the back. Note, however, that the lugs of the centre Double Angle Strip are spaced from the Strips by a Washer. The whole arrangement is held in the chassis by two 5½ in. by ½ in. Double Angle Strips, bolted to the uppermost 1½ in. by ½ in. Double Angle Strips and the Angle Girders 1.

A 2½ in. Rod, carrying a Bush Wheel 19 pressed against the above-mentioned Rubber Ring, also carries a ½ in. Pinion 20 and a 1 in. Gear Wheel 21, the Rod extending only half-way into the bore of the latter. Loosely mounted in the other half of the bore is a 3 in. Rod 23, journalled in the Double Angle Strip and held by Collar 24, that carries a 57-teeth Gear and a 50-teeth Gear. A ½ in. Pinion 22 is mounted on a ¾ in. Bolt secured to the centre front Double Angle Strip.

The sliding lay-shaft is a 4½ in. Rod 25, on which is fixed a ½ in. Pinion, a 1 in. Gear Wheel, another ½ in. Pinion, a ¾ in. Pinion and a Collar. A Socket Coupling 26 is fastened to a Collar at the end of the Rod. By placing the Gears and Pinions as shown you will have two forward speeds and one reverse, as well as a neutral position.

A gear selection lever is obtained from a 4½ in. Strip, which is lock-nutted to an Angle Bracket held by Bolt 27. A Collar on the end of a 6½ in. Rod 28 is pivotally connected to the Strip by a Bolt passed through the second hole from the bottom of the Strip into one of its tapped bores. Mounted on the Rod is a Coupling 29 that supports a 2 in. and a 2½ in. Rod which engage one each side of Socket Coupling 26.

The clutch pedal is represented by a Crank 30, with two Angle Brackets in the shape of a 'T' bolted through the end hole. Fixed on a 6½ in. Rod 31, journalled in 1 in. Triangular Plates bolted to Angle Girders 2, are another two Cranks 32 and 33. Cranks 30 and 32 are then connected by a 4½ in. Strip, lock-nutted through the second hole in Crank 30 and the first hole in Crank 32. Crank 33 carries an Adaptor for Screwed Rod which engages with the Socket Coupling on Rod 17. The Clutch Pedal 30 pivots on an adaptor.

Conveyor belt

A 2½ in. Rod 40, journalled in a 1 in. Corner Bracket and the gearbox side carries a ¾ in. and a 1 in. Sprocket Wheel 41 and 42. Sprocket Wheel 42 is connected to Sprocket Wheel 16 by Chain.

Two 18½ in. Angle Girders 43 are bolted to Angle Girder 3 and a 5½ in. Strip 44 and are then extended by 9½ in. Flat Girders 45, to which an 18½ in. Angle Girder 46 is bolted. Note that this Angle Girder is spaced from the Flat Girders by two Washers on the shank of each bolt. Two 2 in. Slotted Strips 47 are bolted at the rear, then two Threaded Bosses 48 are added, as shown. A 2 in. Screwed Rod, used to tighten the belt, is fitted into the transverse tapped bores of both these Threaded Bosses. Four rollers are built up from two ¾ in. Flanged Wheels and a Sleeve Piece. The rear-most one is mounted on a 4 in. Rod 49 held by Collars, while the remainder are placed on 3½ in. Rods. A ¾ in. Sprocket Wheel on a 4 in. Rod 50, journalled in Girders 45, is connected to Sprocket Wheel 41 by Sprocket Chain. Also fixed on Rod 50 is a ½ in. Pinion 51, which meshes with a 57-teeth Gear on another 5 in Rod 52. This Rod, in turn, carries a ¾ in. Sprocket Wheel connected by Chain to another ¾ in. Sprocket Wheel on the front roller.

A belt-operated lever is provided by

a 2 in. Slotted Strip 53, that is lock-nutted to an Angle Bracket attached to right-hand Angle Girder 1. A loose Collar, held between two fixed Collars on Rod 52, is fixed to Strip 53 by a $\frac{1}{2}$ in. Bolt. Movement of the Strip brings the 57-teeth Gear on Rod 52 into mesh with $\frac{1}{2}$ in. Pinion 51.

Four $\frac{1}{2}$ in. Bolts with Nuts are secured one in each end hole of the $18\frac{1}{2}$ in. Angle Girders 46. Two $1\frac{1}{2}$ in. Strips 54 are held by the front Bolts to fill in the bottom of the wagon. These Bolts will later hold the wagon body in place. The petrol tank, which should be mounted horizontally, is obtained from a $2\frac{1}{2}$ in. Cylinder and two eight-hole Wheel Discs, connected by a Screwed Rod and bolted to the Angle Girder. Nylon ribbon, $1\frac{1}{2}$ in. wide is used for the belt, the ends being sewn together.

Differential

A $1\frac{1}{2}$ in. Rod 34 is placed in the centre transverse bore of a Coupling and fastened by two $\frac{3}{4}$ in. Bolts carrying $\frac{3}{4}$ in. Pinions 35 which engage with $\frac{3}{4}$ in. Contrate Wheels secured on two $4\frac{1}{2}$ in. Rods 36 and 37. Both these Rods pivot in the longitudinal bore of the Coupling. A $1\frac{1}{2}$ in. Contrate Wheel 38 free on Rod 37 is fastened by two $\frac{3}{8}$ in. Bolts to two Collars mounted, one each end, on Rod 34. Also on Rod 37 is fixed a Collar, placed $\frac{1}{8}$ in. away from the Contrate 38. Washers are placed on Rod 36 against the boss of the $\frac{3}{4}$ in. Contrate Wheel and a Boiler End is added. Another Boiler End is placed on the Rod 37, then the two are joined by four 2 in. Strips, to one of which a Double Bent Strip is bolted. The last is spaced from the Boiler Ends by two Washers on each Bolt. A $\frac{7}{16}$ in. Pinion 39 on a 2 in. Rod engages with the Contrate Wheel 38. The completed differential is now connected to the gearbox by two Universal Couplings and a $2\frac{1}{2}$ in. Rod.

Each rear spring is built up from a $5\frac{1}{2}$ in. and a $4\frac{1}{2}$ in. Strip, bolted to a Double Bracket and it is fixed to the chassis by 1 in. by $\frac{1}{2}$ in. Angle Brackets. The mudguards are compound $7\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Flexible Plates, obtained from a $5\frac{1}{2}$ in. by $1\frac{1}{2}$ in. and a $2\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Flexible Plate, secured in position by Angle Brackets.

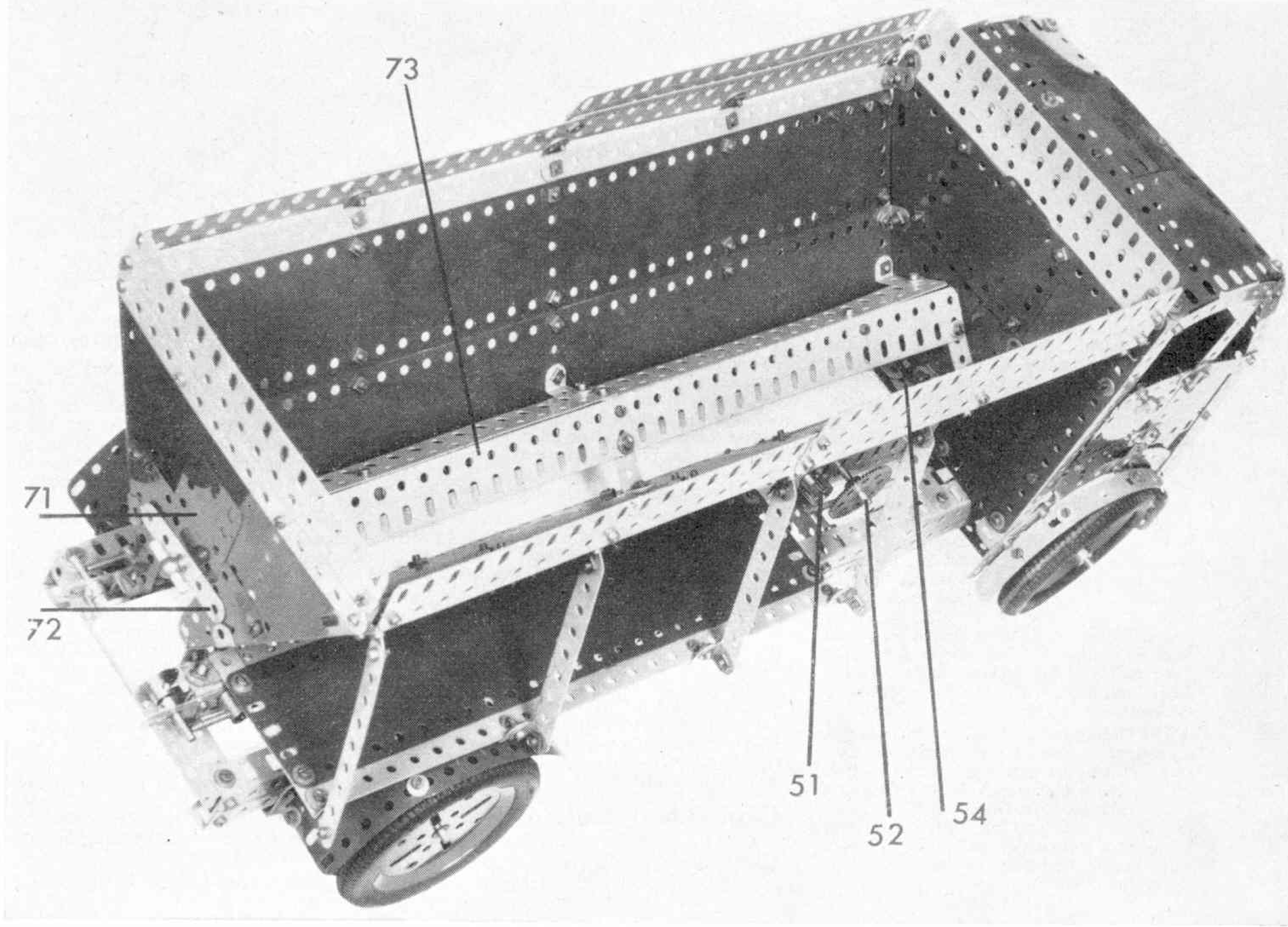
Cab

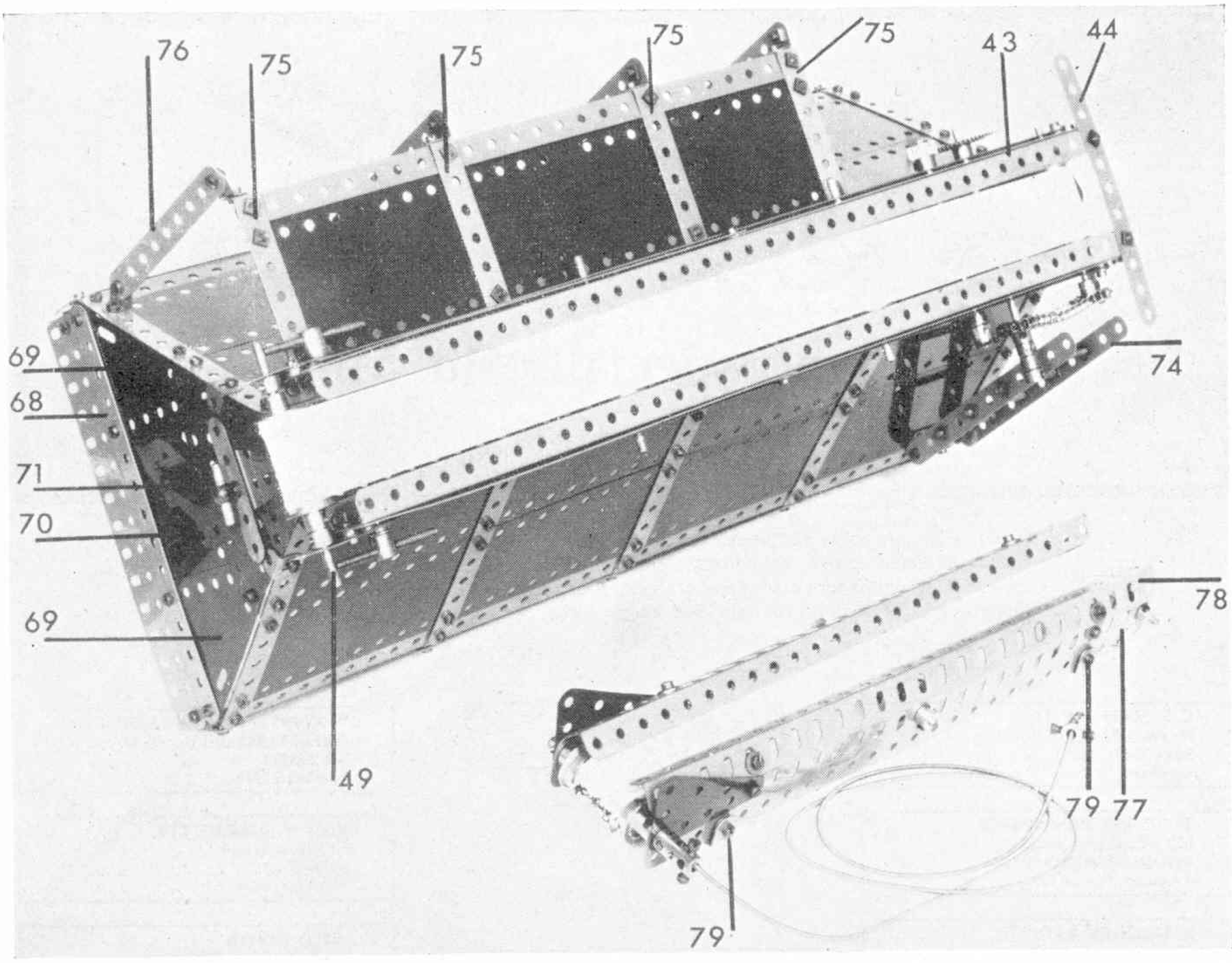
To build the front of the cab, two $5\frac{1}{2}$ in. by $2\frac{1}{2}$ in. Flexible Plates 55, connected at the top by a $2\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Flexible Plate, are bolted to a $7\frac{1}{2}$ in. Angle Girder 54, the outer Bolts also holding Angle Brackets in place. Two 1 in. loose Pulleys are attached, one each, to two Flexible Plates, which are then bolted in front of the Flexible Plates 55. The radiator is formed from two sets of four $4\frac{1}{2}$ in. Strips, joined, at the top, by a $2\frac{1}{2}$ in. Strip and three $2\frac{1}{2}$ in. Stepped Curved Strips, and, at the bottom, by a $2\frac{1}{2}$ in. Strip. A $4\frac{1}{2}$ in. by $2\frac{1}{2}$ in. Flexible Plate completes it.

The windscreen surrounds are formed, as shown, from a compound $6\frac{1}{2}$ in. Strip, made up from two $3\frac{1}{2}$ in. Strips, a $7\frac{1}{2}$ in., two $3\frac{1}{2}$ in. and a 3 in. Strip. Bolt 56, incidentally, fixes a $4\frac{1}{2}$ in. by $\frac{1}{2}$ in. Double Angle Strip inside the cab, against which the gear-change lever slides.

At the back of the cab are two $7\frac{1}{2}$ in. Angle Girders 57 joined by a $7\frac{1}{2}$ in. Strip at the top and by a $7\frac{1}{2}$ in. Angle Girder 66 in the second holes from the bottom. The resulting space is filled in by one $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in. and two $5\frac{1}{2}$ in. by $2\frac{1}{2}$ in. Flexible Plates. Inside, a $7\frac{1}{2}$ in. Angle Girder is bolted through the fifth holes from the lower ends of Girders 57 and, to this, is fixed a compound $7\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Flexible Plate to represent the seat. Bolts 58 secure a $3\frac{1}{2}$ in. Strip on the inside to help support the radiator.

To the front of the cab is attached a $5\frac{1}{2}$ in. Strip 59, a $3\frac{1}{2}$ in. Strip 60, a $2\frac{1}{2}$ in. Strip, and a $2\frac{1}{2}$ in. Curved Strip 61. Three $2\frac{1}{2}$ in. Curved Strips 62 are joined together and bolted to the Angle Girder 57 then a 6 in. Compound Strip 63 is bolted to the Curved Strips 62, the $2\frac{1}{2}$ in. Strip and a 4 in. Curved Strip 64, this last also fixed to Angle Girder 57 and the $3\frac{1}{2}$ in. Strip 60. The side is filled in with a $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in. and a $2\frac{1}{2}$ in. by





2 in. Triangular Flexible Plate.

A door is built up from a $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in. and a $2\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Triangular Flexible Plate, strengthened by a $2\frac{1}{2}$ in. Strip. It is attached by Hinges to the 6 in. Compound Strip 63. A Fishplate is fastened between two nuts on a Handrail Support, carrying a 1 in. Rod in its bore to serve as a door handle. The mudguards are obtained from four Formed Slotted Strips, joined together, and attached by Angle Brackets. Finally, the roof is built using two $4\frac{1}{2}$ in. by $2\frac{1}{2}$ in., one $5\frac{1}{2}$ in. by $1\frac{1}{2}$ in., and one $2\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Flexible Plates. It is attached by Obtuse Angle Brackets at the front and Angle Brackets at the rear.

The completed cab is placed on the chassis by inserting the Angle Girders 54 between the slot of the $24\frac{1}{2}$ in. Angle Girders, and with the $\frac{3}{8}$ in. Bolts 65 securing it to the $5\frac{1}{2}$ in. Angle Girder 3. The Angle Girder 66 is now bolted to Angle Girders 1.

Wagon body

Five Obtuse Angle Brackets are bolted to each of two $18\frac{1}{2}$ in. Angle Girders 57 and to these is fastened five $5\frac{1}{2}$ in. Strips and two $9\frac{1}{2}$ in. by $2\frac{1}{2}$ in. Strip Plates. Two $9\frac{1}{2}$ in. Strips and five Obtuse Angle Brackets are secured to the ends of the $5\frac{1}{2}$ in. Strips, the latter supporting three $9\frac{1}{2}$ in. Flat Girders. The two sides are joined together at the top by a $7\frac{1}{2}$ in. Strip 68 with the help of Angle Brackets. Two $3\frac{1}{2}$ in. by $2\frac{1}{2}$ in. Triangular Flexible Plates 69 and a $3\frac{1}{2}$ in. by $2\frac{1}{2}$ in. Flexible Plate 70 are bolted to this Strip.

The front is completed by two $2\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Triangular Flexible Plates and a $5\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Flexible Plate, the latter being bolted, with a $1\frac{1}{2}$ in. Strip at the bottom, to Angle Brackets attached to Angle Girders 67. The Triangular Flexible Plates are fastened to the $5\frac{1}{2}$ in. Strips by Angle Brackets. The back is similarly built except for the $5\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Flexible Plate and $1\frac{1}{2}$ in. Strip, which are not included.

A sliding door to allow the coal to pass from the endless belt is built from a $2\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Flexible Plate 71 with a $2\frac{1}{2}$ in. Strip 72 on the outside and a vertical 3 in. Strip fixed to a horizontal $1\frac{1}{2}$ in. Angle Girder on the inside, all bolted together by a Handrail Support carrying a 1 in. Rod in its bore. Another $1\frac{1}{2}$ in. Angle Girder is bolted to the first $1\frac{1}{2}$ in. Angle Girder to make a reversed Angle Girder, which touches the endless belt.

Four $9\frac{1}{2}$ in. Flat Girders 73 are bolted to a $12\frac{1}{2}$ in. Angle Girder then the whole arrangement is fixed to the side by 1 in. by $\frac{1}{2}$ in. Angle Brackets, as shown. A ladder, made from $5\frac{1}{2}$ in. Strips and 2 in. Screwed Rods 74, is attached to the side by a $1\frac{1}{2}$ in. by $\frac{1}{2}$ in. Double Angle Strip. Four $3\frac{1}{2}$ in. by $\frac{1}{2}$ in. Double Angle Strips 75, fixed to Angle Girder 67, are supported by $4\frac{1}{2}$ in. Strips 76 attached by Angle Brackets. A $12\frac{1}{2}$ in. by $2\frac{1}{2}$ in. Strip Plate and a $12\frac{1}{2}$ in. Strip are then bolted to the Double Angle Strips, as shown.

Conveyor belt extension

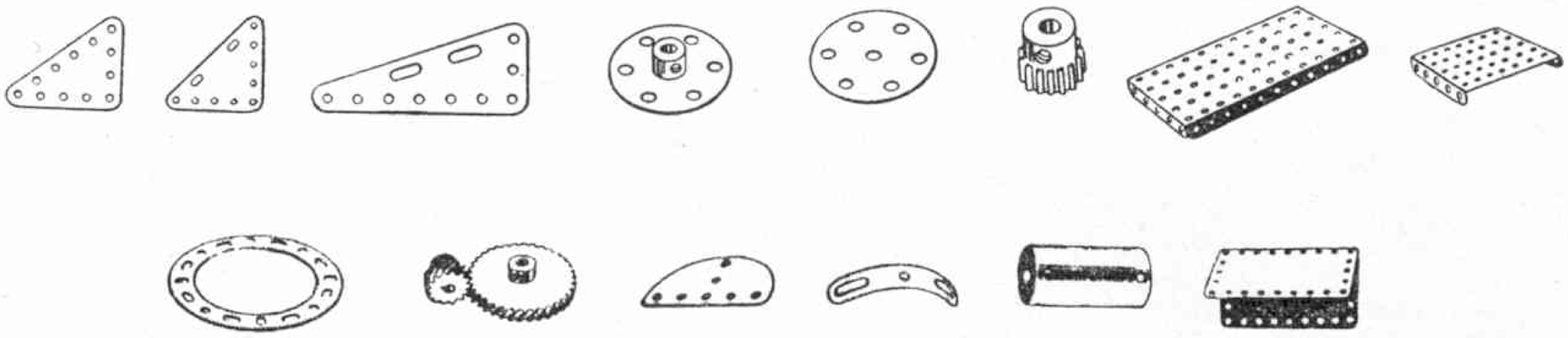
A $12\frac{1}{2}$ in. Flat Girder 77 is attached to each of two $12\frac{1}{2}$ in. Angle Girders 78 by Obtuse Angle Brackets.

Two $2\frac{1}{2}$ in. by $\frac{1}{2}$ in. Double Angle Strips 79 join the two sides together, after which two $2\frac{1}{2}$ in. by $1\frac{1}{2}$ in. Triangular Flexible Plates are secured at one end.

Three rollers built as before are placed in position on 3 in. Rods held by Collars. An imitation flexible drive, obtained from Spring Cord and Couplings, is connected to the first roller. Nylon ribbon again represents the endless belt.

The wagon body is now placed on the Angle Girders 46, with the earlier-mentioned $\frac{1}{2}$ in. Bolts passing through the Angle Girder 67. Another Nut is placed on each Bolt and screwed down.

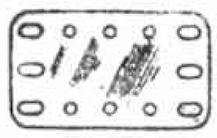
To try out the model, place small objects like Nuts and Bolts inside the wagon, lift the Sliding Door 71, and pull over the Lever 53. The Nuts and Bolts will be unloaded very quickly like a jet of water coming from a hose.

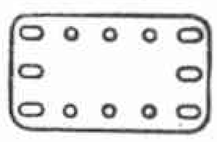


Dealers who specialise in Meccano spare parts

Listed below are some of the dealers who sell Meccano accessories and spare parts. This is intended to aid enthusiasts—and there are many of them—who constantly require additional spare parts for their Sets. All dealers can, of course, order Meccano spare parts for their customers, but those listed here are among our spare part specialists.

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PLAY-DOH SCENERY

By Mike Rickett

OF the many compounds and materials that are in common use in the construction of scenery for model railways, model racing car circuits and landscapes, the recently introduced Play-Doh modelling compound is perhaps one of the most useful. One of its many advantages over similar materials is its ability to harden naturally and also the ease with which it can be painted—a very valuable asset when building scenery for a model railway layout.

Play-Doh is particularly useful when granite or sandstone rock faces are being modelled. The cracks, crevices and fissures of real rock are easily reproduced in model form with the simplest of tools, and more important, Play-Doh is not quick drying and it is not therefore necessary to hurry.

Play-Doh is available in four colours: white, blue, red and yellow, any one of which is suitable for this sort of modelling. A 3 lb. tin of Play-Doh, costing 12s. 6d., is ample for a two or three foot long cutting.

If the cutting or hillside is built up in the manner described in the February, March, April, May, June, July, and August 1964 issues of the 'Meccano Magazine', $\frac{1}{2}$ in. to 1 in. wire mesh will be used to form the base for the scenery and this can also be bent to form the base for the rock face. This should then be nailed into position ready to receive the modelled Play-Doh. The remaining scenery at the top of the cutting or hillside not requiring a rock face, can be treated in the normal manner, i.e. papier mâché and plaster.

The Play-Doh can then be removed from its container and kneaded until it is soft and workable. A quantity is then rolled out flat until a thickness of approximately $\frac{1}{4}$ in. remains and the entire piece is trimmed to the correct size for the area to be covered by the rock face.

Wire mesh

It is wise to allow for a little contraction when the Play-Doh has set hard and I would recommend that the piece be made about $\frac{1}{4}$ in. longer and wider for every foot length. You can if you wish, buy a small sheet of extra fine wire mesh—$\frac{1}{8}$ or $\frac{1}{4}$ in., which can be embedded in the Play-Doh to give it extra strength. This is not absolutely necessary however, especially if wire mesh is used as a backing to both the rock face and the normal scenery.

The Play-Doh is laid out flat and a penknife or modelling knife used to carve out layers of Play-Doh to form ledges, cracks and other strata. This is where Play-Doh wins, for the only other alternative method of making a rock face is by using plaster applied on to a papier mâché and wire mesh base actually in position. With Play-Doh it is much easier to carve the rock face flat on a work bench and then to place it in position, rather than to carve the rock face when in position.

Realistic surfaces

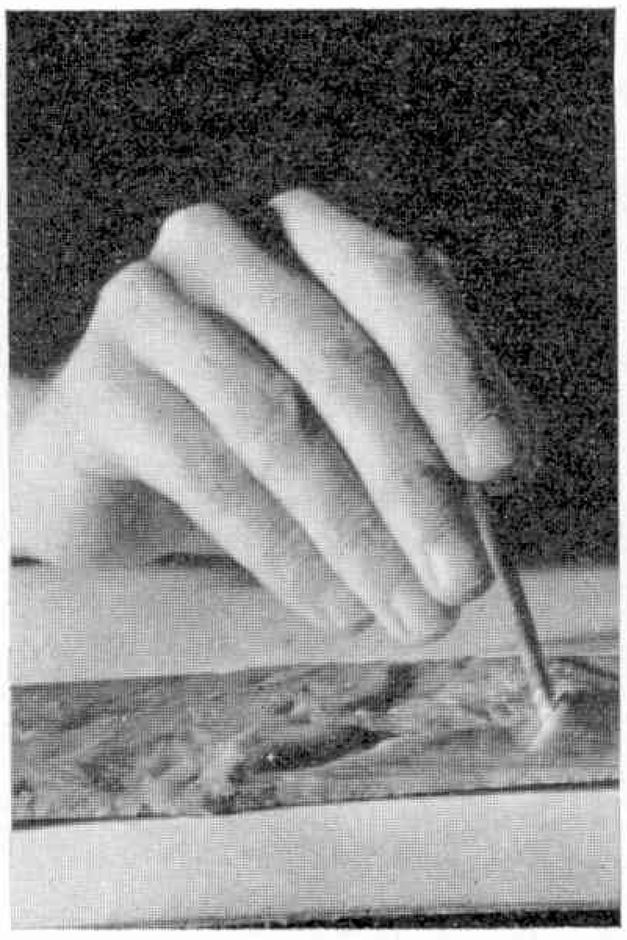
The actual carving is a relatively simple operation and is done by scraping one area of Play-Doh and then adding the remaining scraps underneath the area to form a ledge, which is then smoothed off. Cracks are formed by drawing a penknife at an angle across the piece of Play-Doh and then smoothing off each side of the crack with a penknife and scraping a little off one side to give an uneven appearance to the opposite side.

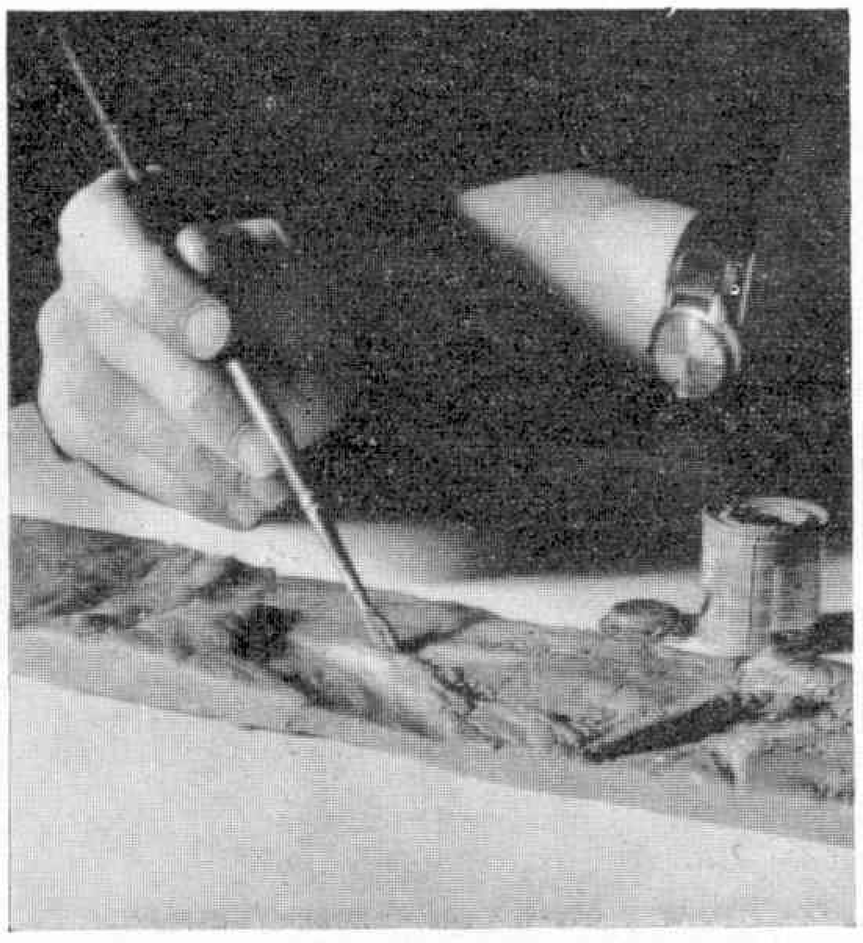
The rock face can be placed in position and plastered at the upper and lower edges. It is advisable to wait for approximately 24 hours to let the Play-Doh set before painting. The painting itself should be done with oil colours, for although water colours are quite suitable for Play-Doh, they tend to be less vivid when dry.

For a wall of granite, a medium grey paint should be used and for sandstone, a reddy brown mixed with orange. However, it is best to experiment and to vary the shade as you go along. It is rare to find a rock face exactly the same colour throughout its length and to enhance the effect, patches of green can be added on ledges and cracks and flock or dyed sawdust sprinkled on to represent grass at the bottom of the rock face.

Left. The Play-Doh is kneaded to soften it before it is rolled out flat. Centre: Cracks and fissures are formed with a modelling knife or blunt instrument. Right: When the Play-Doh has hardened, it is then painted to give a faithful reproduction of a rock or soil surface







Dinky Toys News by **Chris Jelley**

BUSINESS PLANE AND BEDFORD BOX VAN

WHAT,' you may ask, 'is a business plane?' A simple question and one with an equally simple answer—'an aircraft, the primary role of which is to transport businessmen when their duties require them to travel long distances quickly and easily.' An important factor in any sort of business today is time. Time means money and, to many people, time spent travelling is time wasted. It follows, therefore, that travelling time should be cut to an absolute minimum and I am sure you will agree that the fastest way of covering any appreciable distance is to fly.

Britain being such a small country, the need for business aircraft is not yet great, in spite of increasing road congestion—and we do at least have a reasonably efficient railway system running between our major cities. Take a country such as America, however, and we have a totally different story. There distances are so vast that even a high-speed express train can take as much as three full days to travel from coast to coast. Couple this to the fact that America is famed as a land of big business and it becomes obvious that some means of fast and convenient travel is essential. It is hardly surprising, therefore, that the United States is what could be described as the home of the business plane, and also supplies most of the world demand for this type of aircraft.

Aerial taxi

Even in the early days of aviation, when flying was regarded as a hobby for brave eccentrics, far-sighted people must have realised the tremendous possibilities afforded by the aeroplane. But, these possibilities were not seriously brought to the aid of the business world until the

A fine view of the sleek Beechcraft S35 Bonanza



early 1930's when Mr. Walter H. Beech founded the Beech Aircraft Company in 1932. With their very first machine, a bi-plane called the Beechcraft Model 17, this company opened an entirely new branch of aviation and, since then, have grown enormously, introducing a great variety of successful aircraft over the years.

Today, the Beech Aircraft Company might well head the list of light aircraft manufacturers. It is understandable, therefore, that Meccano Limited, having decided to add an 'aerial taxi' to the Dinky Toy range, should choose as a prototype perhaps the most famous of all Beechcraft's aeroplanes, the 'Bonanza'. This was first flown in 1945, but our model is based on the latest version, the S35.

The specifications

Marketed under sales No. 710 the Dinky Beechcraft S35 Bonanza is, I think, the only die-cast model of its type in Great Britain, if not in the world. It is certainly the best, most advanced model aeroplane we have ever made. To begin with, it is not only fitted with 'glazed' windows all round which, in themselves, are entirely new in our aircraft, but also has an opening luggage door and a lift-off engine cowl. Inside, the designers have provided seats, and the model comes complete with pieces of 'freight' in the shape of two small valises. An undercarriage is fitted and finish is in two-tone red and white with authentic transfer markings.

One very important point peculiar to this model is its scale. It has been necessary to produce all our other aircraft to a special small scale because of the huge size of the real-life machines. The scale of the Beechcraft, on the other hand, is 1/77, which makes it a good, substantial replica and one well worth owning. Unfortunately, no photograph of the toy was available at the time of writing, but I will do my best to include one at the very first opportunity.

Returning to the full-size world, what qualifications determine a business plane? It must, of course, be light, needing only a reasonably short take-off and landing distance, and must also be able to use all types of landing ground, ranging from large International airports to little 'dirt strips'. It should be comparatively small and yet accommodate a sensible number of passengers without wasting space. Its range should be as long as possible and, very important, it must be economical in operation, while still having a good cruising speed.

The Beechcraft S35 Bonanza fulfils all these requirements. It weighs only 1,885 lb. empty, except for standard equipment, and has a maximum take-off landing weight of 3,300 lb. At maximum T-O weight, it needs a take-off run of less than 300 yards and a landing run of little more than 200 yards. As for its ability to land anywhere, any Bonanza owner will confirm this without hesitation. Size, also presents no problem, as it has a wing span of only 33 ft. 5½ in., an overall length of 26 ft. 4½ in. and a height over the tail of 7 ft. 7 in. In spite of this small size, however, it will accommodate four, five or six people on individual seats, all in an enclosed cabin. The standard version has a fuel capacity of a little over 41½ gallons and with a maximum fuel has a range of 1,145 miles, allowing for warm-up, take-off, climb and 45 min. fuel reserve. This works out to a fuel consumption of approximately 28 m.p.g., which is a lot better than many business cars.

Power for the Bonanza is provided by one 285 h.p. Continental 10-520-B six-cylinder horizontally-opposed air-cooled engine, driving a McCauley two-blade metal constant-speed propeller with a diameter of 7 ft. A three-blade Hartzell propeller with a diameter of 8 ft. 8 in. is available as an optional extra. Maximum level speed at sea level is 212 m.p.h. The maximum cruising speed at 6,500 ft. is only a little less than this at 205 m.p.h., although the economical cruising speed at 10,000 ft. is 165 m.p.h.



Note the sliding roll shutters incorporated on this new commercial vehicle model—the Bedford T.K. Box Van No. 450



Before passing on to our other new release I should mention that although the prototype Bonanza flew for the first time on December 22, 1945, it did not go into full production until 1947. The latest version, the S35, received Federal Aviation Agency Type Approval on January 2, 1964. In other words it was officially recognised on that date. To help you identify it, I should like to draw your attention to the highly-distinctive 'Butterfly' tail unit, consisting of tail-plane, and elevators, set at a 33 degree dihedral angle. This, I believe, is unique to the Bonanza.

Bedford T.K. Van

Our other new release is a new and excellent addition to the Dinky range of commercial vehicles. Officially termed Bedford T.K. Box Van No. 450 it comprises a splendidly detailed van body on the renowned Bedford T.K. chassis. The van section, itself, sports a feature entirely new to die-cast modelling, namely working roll shutters situated one on the near side and one at the rear. These slide up and down most realisti-



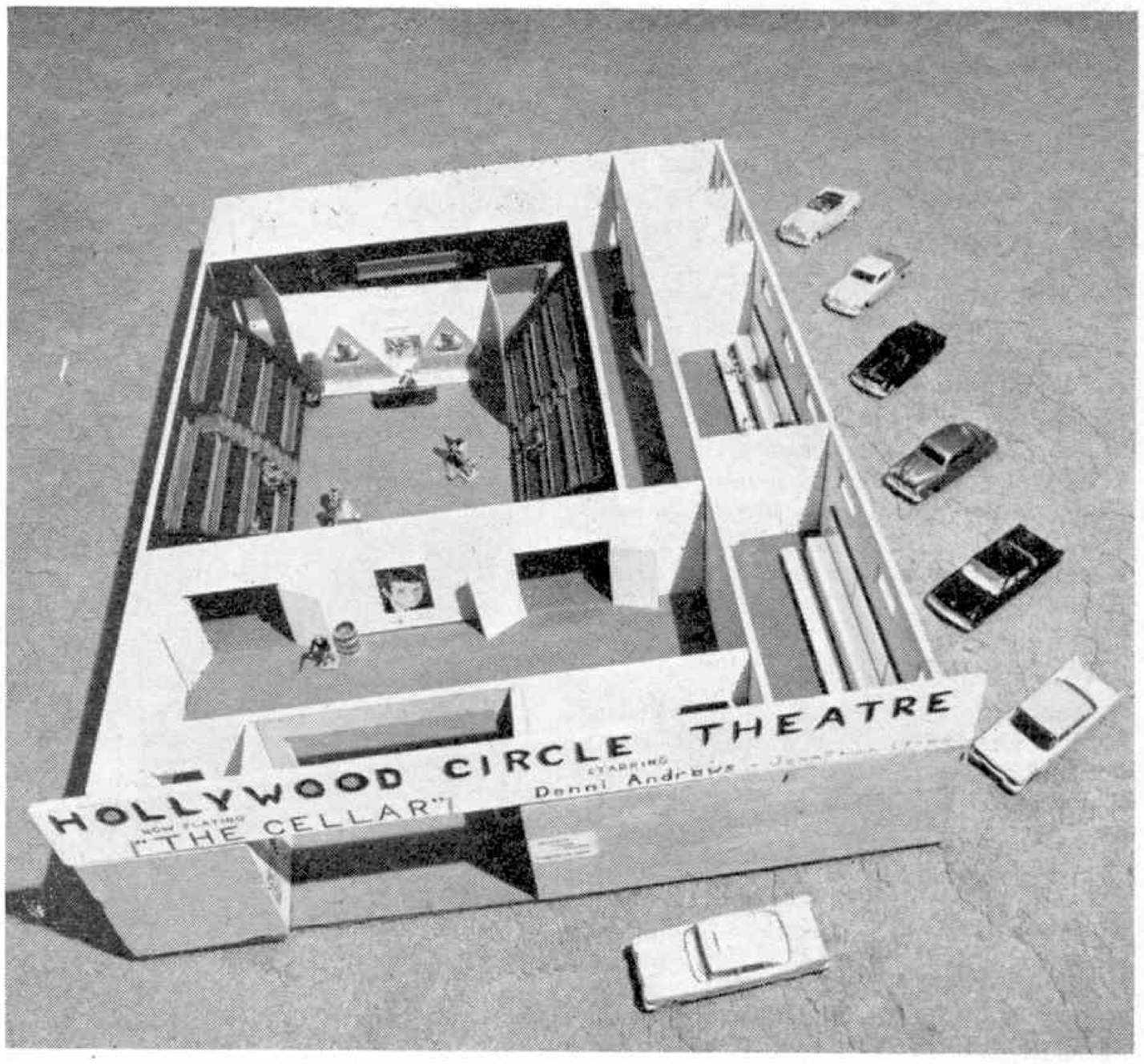
cally allowing access to the spacious interior. In accordance with our other T.K. models the cab is fitted with windows, seats and steering wheel.

Approximate overall dimensions of the model are 5½ in. long by 2 in. wide by 2 $\frac{7}{10}$ in. high. Finish is in a flamboyant green colour with authentic 'Castrol' oil advertisements in red on a white background. It really is a model loaded with play value.

American Display

At the beginning of the year we published a photograph showing part of a display, incorporating Dinky Toys, that was mounted in Los Angeles City College, California. Mr. Robert Stuart, of Hollywood, California, played an important part in building the display and he has again been exercising his talent. This time he built the ground floor section of a two-storey and basement building representing the new Theatre Arts and Broadcasting Building which should be finished shortly after you read this issue. The latest display also made use of Dinky Toys, as you will see from the picture reproduced on this page and was on show, as before, in the foyer of the present Theatre Arts Building of L.A.C.C.

The section built by Mr. Stuart incorporates a theatre, a ticket office, a foyer, four dressing rooms, an office, and a backstage storage area.



A realistic use of Dinky Toys to enhance this model theatre

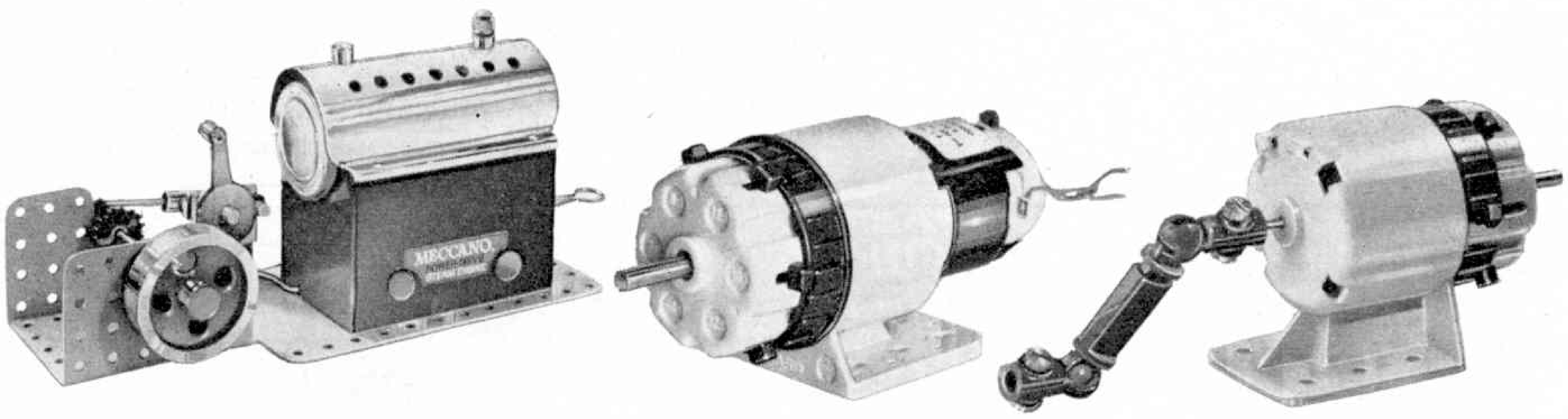
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by F.E.Metcalfe

Sunny Barbados

YOU hear a lot in these days of rapid travel, of even short holidays to the Caribbean, and perhaps one or two reading these comments may be contemplating such a trip as the year advances. But it's the big new set of stamps issued by Barbados on July 15 that I wish to write about. A word first, however, about this sunny isle. It is situated far east of the Caribbean Islands and it only covers an area of 166 square miles—say about as big as the Isle of Wight. This small area is divided into three regions, Lowland, Upland, and would you believe it (they get everywhere and make a mark), Scotland. But whereas the first two districts are carefully cultivated, the latter is too steep for anything like that. Now for the stamps. This new issue is devoted exclusively, as far as the designs are concerned, to the denizens of the sea which surround the island, and my word what a set it is, as the stamps show. Do consider a set, even if you do not feel like going to the top value, which has a face value of 10s. 5d. For a couple of shillings or so, you can get a quite nice representative lot.

'I.T.U.'

As I write collectors of such things are busy mounting the umpteen sets issued to commemorate the centenary of the International Telecommunication Union. I won't take up precious space to explain this event, for the newspapers have said all there was to say about it. It's the issued sets (very many delighted at the stamps which matter here. I have lost count of all the countries which have opportunity), but the set which I like best (though all had to be based more or less on a general design) was that of Ireland. I must admit to a weakness for Irish stamps, and this modest set of two values is within the reach of all collectors. Don't miss a pair.



The 3d. value of the Irish I.T.U. issue

Phosphor Lines

A young collector wrote recently to say that he had heard that they had changed the lines (these are the colourless phosphor lines that he was referring to) on the 3d. stamps, and what was the reason for this? Well, I had probably better explain that it is only in London S.E., Glasgow, Liverpool and Southampton where the stamps have these lines at all, and they aid the handling of mail by machinery. Now there is first and second class mail, and the recent rise in postal rates meant that the cost of sending printed matter (first rate) went up from 2½d. to 3d. Hitherto there was only one line on the 2½d. stamp; now there are two, for the 3d. has taken its place. Hence, the one which appears (if you could only see it, you need a sharp pair of eyes) in place of the previous couple on the 3d. I did write a full article on this subject some time ago, so perhaps I can now pass on.

Hearts & Maps

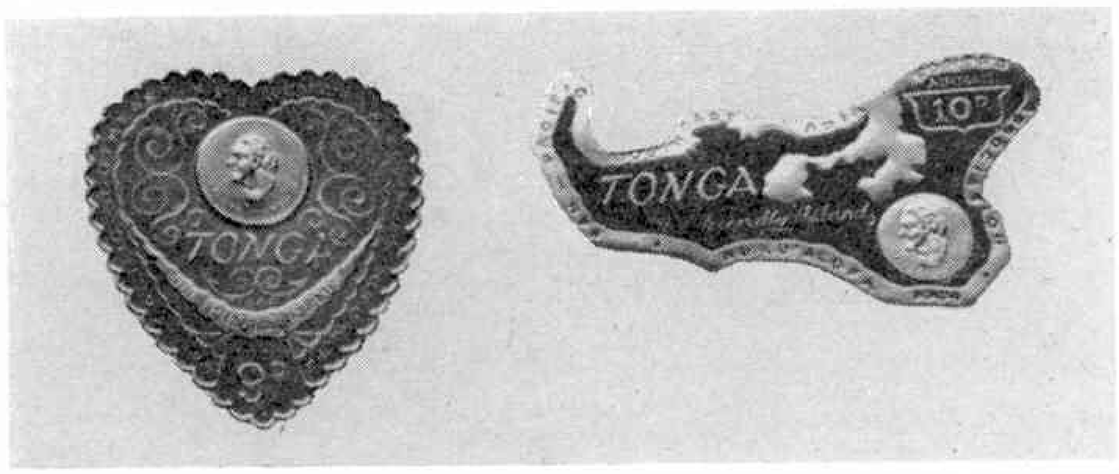
Another reader is asking about something she had given to her as a stamp which, as she put it, she had great doubts about. Well, it is supposed to be a stamp; at least that's what the issuing post office of Tonga called it and, after all, it would have been valid for postage had the owner so wished to use it. At the same time, let us admit it, the whole affair was a gimmick to attract the contents of stamp collectors' pockets away to far-off Tonga, and as the "stamps" sold out (most values) in a jiffy, then we collectors fell for the bait once more. But as can be seen from the illustrations, it is no small wonder my correspondent was suspicious about her gift. Who on earth would have thought that one up? As a matter of fact, the idea did not germinate in Tonga. Actually the set was issued last October. There were eight values (four hearts and four maps), but they were classified as ordinary and air mail, four of each, and now that the novelty is wearing off, smiles, not only of tolerance, are emerging. A gimmick issue all right, but what a gimmick.

The Tip of the month

I expect to have more to say about the great set which Malta is to issue September 1st. It will be designed by the Chev. E. V. Cremona, who is doing some wonderful work at the moment. However, I am afraid that he will have his critics, but more of that next month. In the meanwhile I would suggest that if you are thinking of taking up a new country, the stamps of Malta are well worth your consideration. A few years ago, due to the issue of too many stamps they underwent a bit of a slump. But so attractive are the new stamps which this island is issuing in these days, that a bit of a boom is taking place and I think it will go on growing. The set I shall be talking about next month will be of great interest to history lovers.



The designs of the new Barbados stamps are devoted to fishes of the sea. This type of set is called "thematic"



The "heart" and "map" stamps issued by Tonga last October

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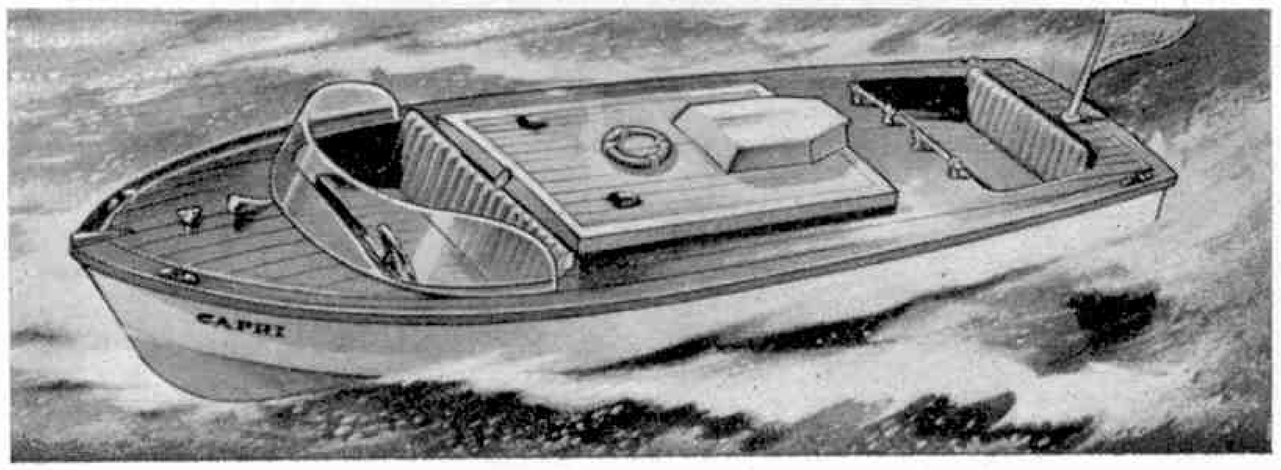
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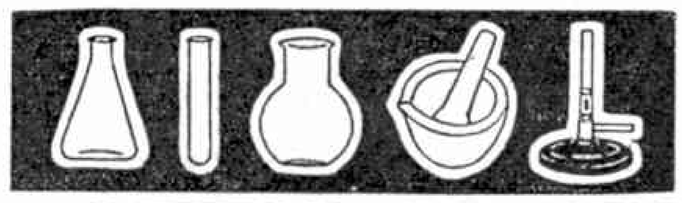
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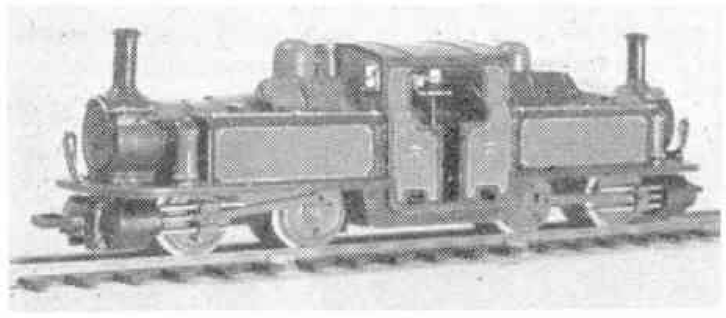


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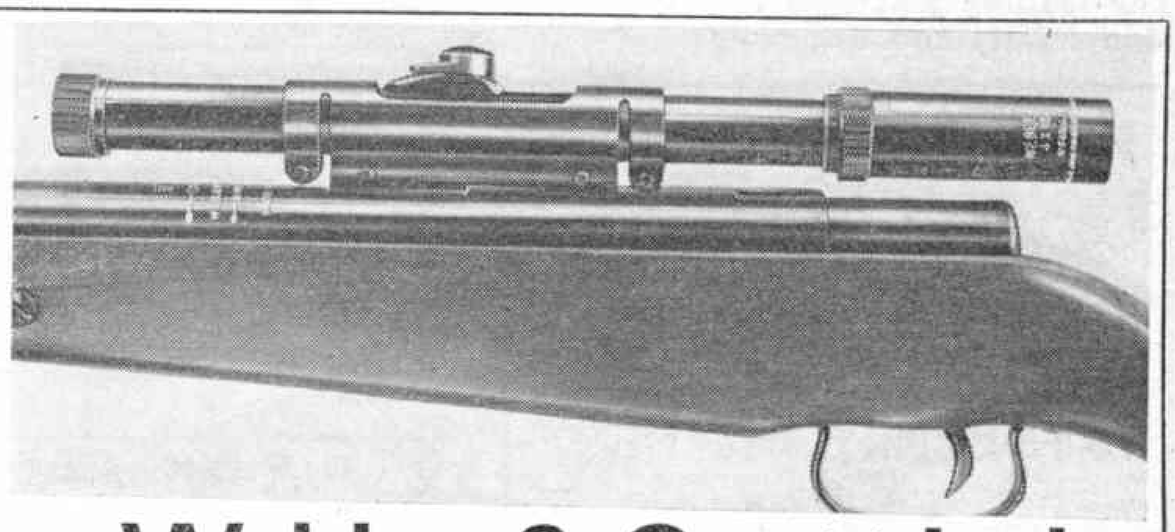
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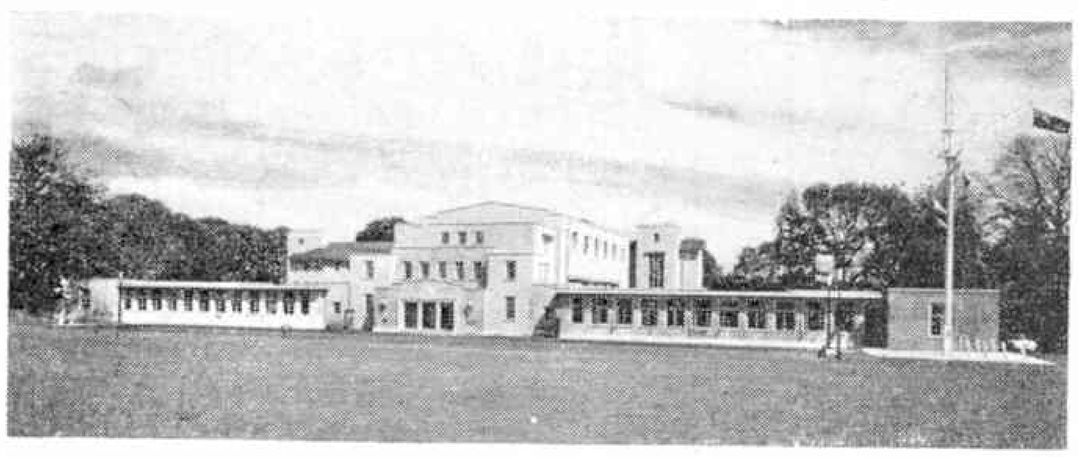


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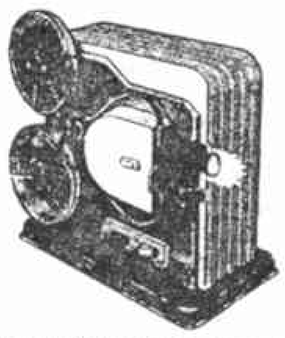
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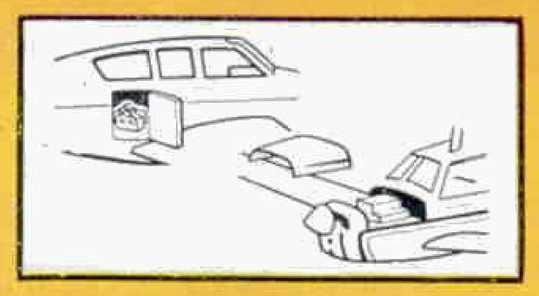
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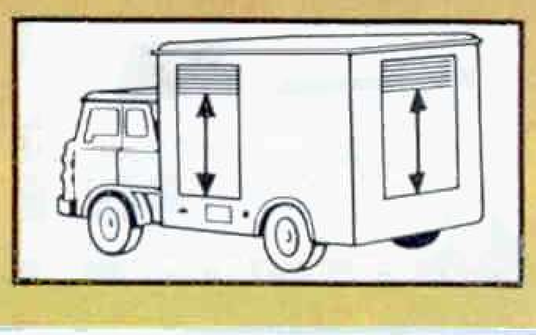
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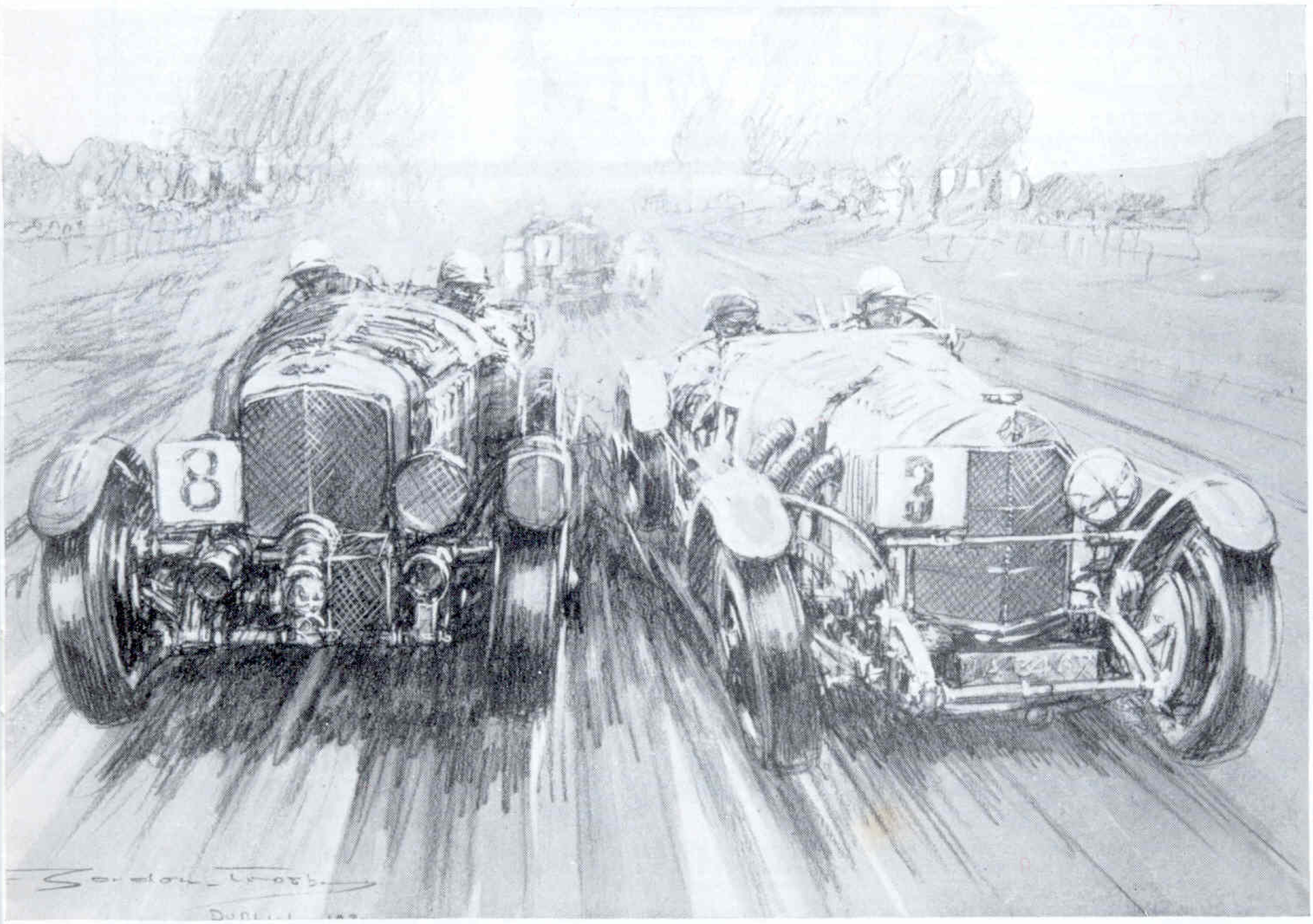
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By J. Wheeldon, Editor of Miniature Autoworld

Racing Roundup

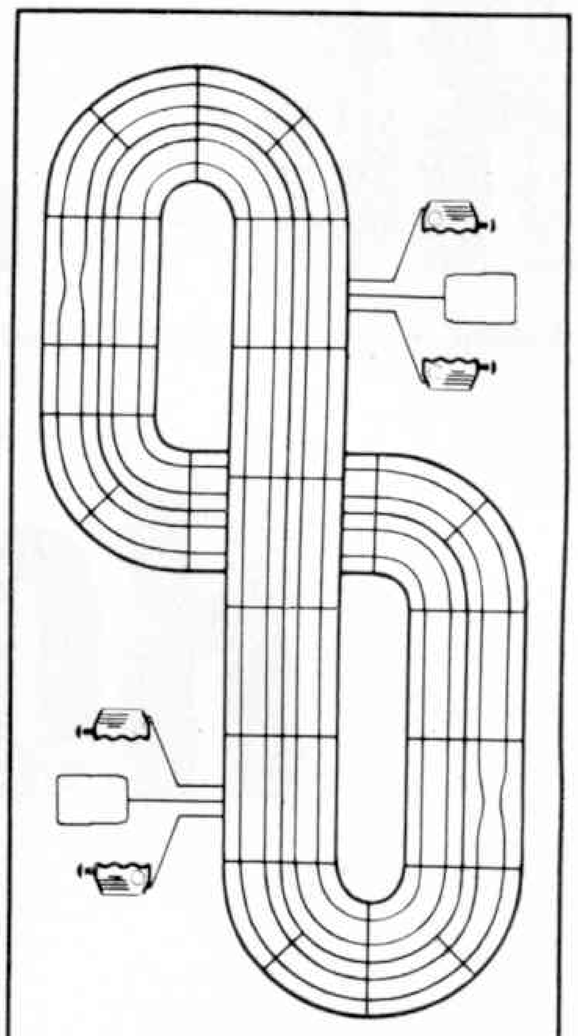
In this special racing supplement, it is our intention to outline what is entailed in this fascinating and increasingly popular hobby, and to start with a brief review of proprietary equipment available in the U.K. is therefore necessary, from which readers who are interested in joining in the fun can select the product to suit their own requirements.

Picture by courtesy of Autocar



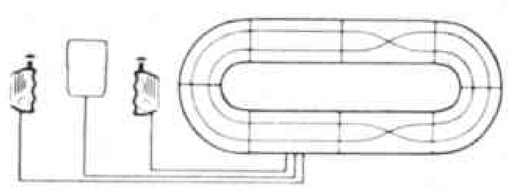


BE A CHAMPION!

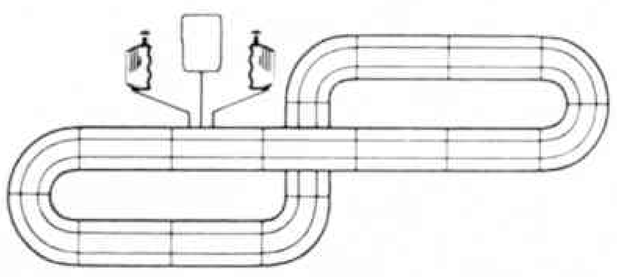


Sets B and C combine to form this 4 lane layout. 28½ ft. of figure-8 track. Area of layout 76″ × 40″.

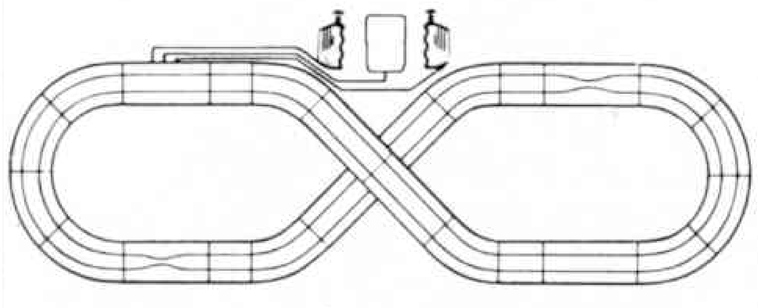
WITH



X.100 Set A. 79/11 6 ft. of track using small radius (Inner) curves and two cross-overs. Area of layout—36″ x 15″.



X.110 Set B. 99/11 12½ ft. of figure-8 track, using small radius (Inner) curves. Area of layout—66″ x 25″.



X.120 Set C. 130/- 16 ft. of figure-8 track, using large radius (Outer) curves. Area of layout—83″ x 25″

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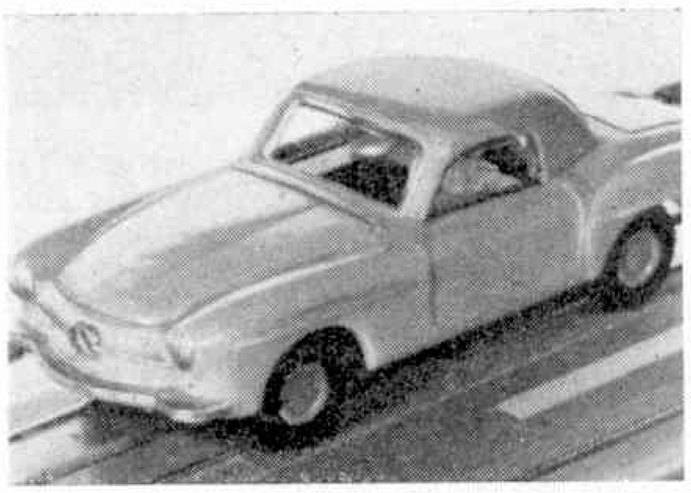
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THE RIGHT TRACK

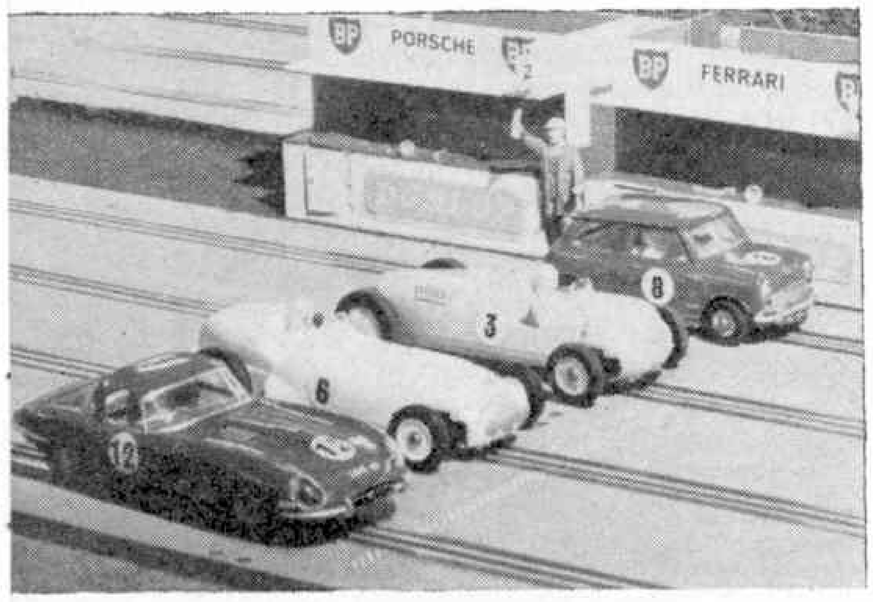
The business of choosing the system that's best for YOU becomes more and more difficult as new and improved units continue to appear in bewildering variety. This special Meccano Magazine round-up will put you on the right track from the start!

Airfix Motor Racing

Manufacturer: Airfix Ltd.
Scale: 1/32.
Track: Made of tough grey plastic with moulded rough surface. 'T' section brass pick-up rail, electrical continuity by springs tags butted together. Units joined by nylon Track Connectors.
No. of lanes possible: two or four.
Cars: 3-pole, 12-v. D.C. crown and pinion drive, braided copper pick-up. Steering. Eight F.1 cars available, eight production cars complete or as motorised conversion kits.
F.1: Cooper, Ferrari, Porsche, Lotus, Auto Union, Mercedes, Vanwall, Maserati. Production Cars: Mini Cooper, Lotus, Cortina, Viva, 'E' type Jaguar, Morris Miniminor, Sunbeam Rapier, Ford Zodiac and M.G. 1100. Accessories available.
Sets available: MR.7—£3.19.11; MR.11—£4.19.11; MR.125—£5.19.11; MR.185—£7.19.11.
A few trackside accessories.



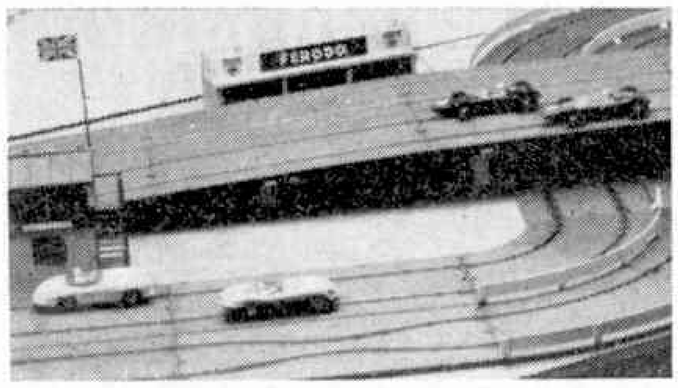
17M, Porsche, 'E' type Jaguar, Citroen DS.19, Fiat 1800B, Cadillac Coupe and Mercedes models, etc.
Sets available: Introductory (4001) £5.10.0, Standard Set (4002) £6.19.0, Sport Racing Set (4007) £10.10.0, De Luxe Set (4009) £17.10.0.
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Auto-Motor Sport

Manufacturer: Faller.
U.K. distributor: Richard Kohnstam Ltd.
Scale: Approximately 1/87. (Suitable for use with OO model railways.)
Track: Moulded in grey/brown plastic with $\frac{1}{16}$ in. wide steering slots. Vertical upright metal strips at ·59 in. centres either side of slots standing proud of road surface. Electrical continuity is made through enlarged fishplate type unit connectors.
No. of lanes possible: Two, three or five.
Cars: 3-pole 12-v. D.C. worm drive, spring metal pick-ups, non-steering. Range including Opel Kapitan, Volkswagen, Ford

Champion Motor Racing



Manufacturer: Playcraft Toys Ltd.
Scale: 1/37—1/40.
Track: Black plastic with locating lugs and separate locking spring clips to connect each unit. Railway type conductor rails used and electrical continuity assured by fishplate connections.
No. of lanes possible: two or four.
Cars: 3-pole 12-v. D.C. crown and pinion drive. Braid wire pick-ups on later versions. Ackerman type steering.
Cars include: Mercedes 300SL, 'E' type Jaguar, Ferrari 250 GTO, and Lotus, Ferrari and B.R.M. F.1 models. Accessories available.
Sets available: A. (X.100) £3.19.11; B. (X.110) £4.19.11 (sets A and B using inner curves), set C (X.1120) £6.10.0, using outer curves. A four-lane circuit can be built by combining sets B and C. Corgi kits used for trackside accessories.

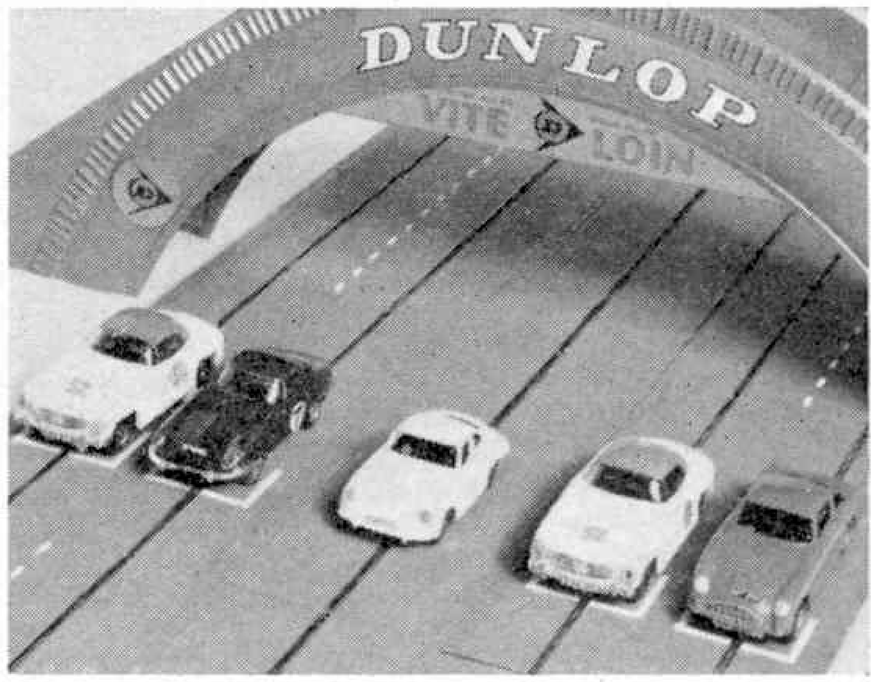
Formula 152



Manufacturer: G. & R. Wrenn Ltd.
Scale: 1/52.
Track: Moulded in grey high impact polystyrene and reasonably flexible for undulations. 152 offers the opportunity to race three cars on one lane due to the provision of two pick-up rails either side of the slot. Units are connected to each other by way of metal tongues in the metal rail ends. No loose unit connecting pieces necessary really, but track clips are available if complete circuit is to be moved bodily.
No. of lanes possible: two, four or six.
Cars: Latest versions have 12-v. D.C. rotary motor, crown and pinion drive, spring pick-ups, fixed steering. Range includes Ferrari, Cooper, Mercedes, Vanwall and B.R.M. each in choice of two colours. Approx. 3 in. long.
Sets available: 0—£5.5.0; 1—£6.10.9; 2—£7.15.0; 3—£8.5.0.
A few trackside accessories.

Minic Motorways

Manufacturer: Minic Ltd. (Lines Bros.)
Scale: Approximately 1/72 (suitable for use with OO model railways).
Track: Originally grey, now black polystyrene units with locating plastic lugs and metal pins. No separate connecting parts required. Current supplied through vertical brass strips set in channel and separated by rubber strips. Electrical continuity by spring tabs at end of brass strips.



No. of lanes possible: two, three or five.
Cars: Originally vehicles operated by Gimbal wheel transporting current to a three-pole motor. Latest developments are chassis moulded in plastic, larger motors of conventional design incorporated and the pick-up has a spring leaf device which affords an extremely efficient and constant

(Continued on page 4)

contact. Large range of cars including Mercedes, Jaguar, Aston Martin, Porsche for racing, and for roadways Humber Super Snipe, Rolls, Mercedes Benz, Jaguar. Commercial vehicles include double decker buses and steam lorry.
Sets available: Grand Turismo £3.19.11; Trident £8.17.6; Europa £5.13.6. Trophy Accessory Set, International Extension Set. A few trackside accessories.

Revell Raceway





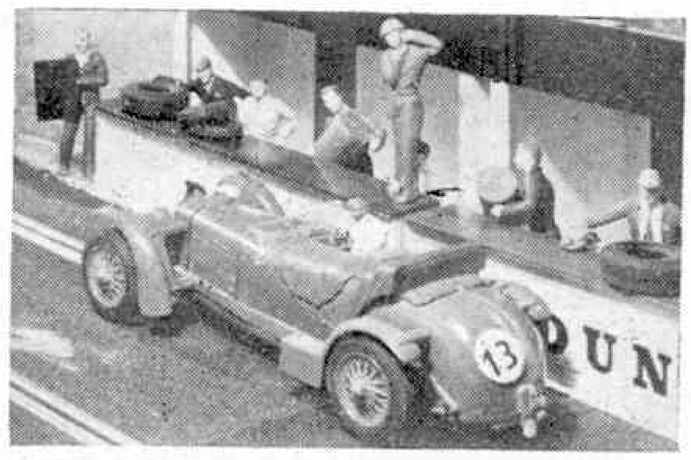


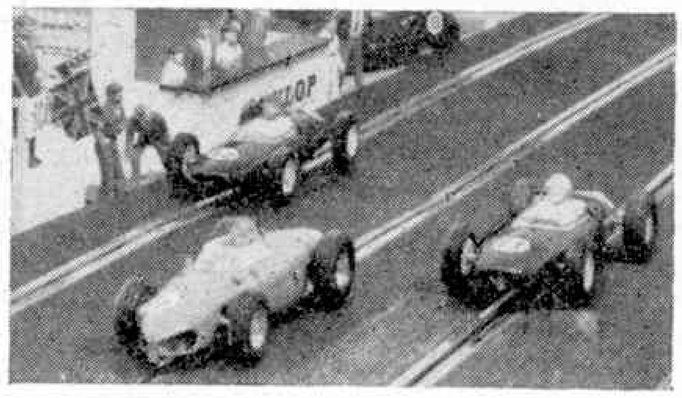


Manufacturer: Revell (G.B.) Ltd.
Scale: 1/32.
Track: Moulded in tough, grey, high impact polystyrene reasonably flexible for undulating. Inverted 'U' shape conductor strips of nickel plated steel.
No. of lanes possible: two.
Cars: Three-pole, 12-v. D.C. crown and pinion drive, braid pick-ups. Range so far includes Corvette Stingray, Ferrari 250 G.T.O., Triumph TR.4, Sunbeam Alpine Sports, Mercedes 300.SL and Aston Martin. Motors available separately with other spares.
Sets available: Grand Turismo £10.10.0; and Rally Set £6.6.0.

Scalextric

Manufacturer: Minimodels Ltd. (Lines Bros.)
Scale: 1/30 and 1/32.
Track: Made of tough black plastic reasonably flexible for undulating. Con-

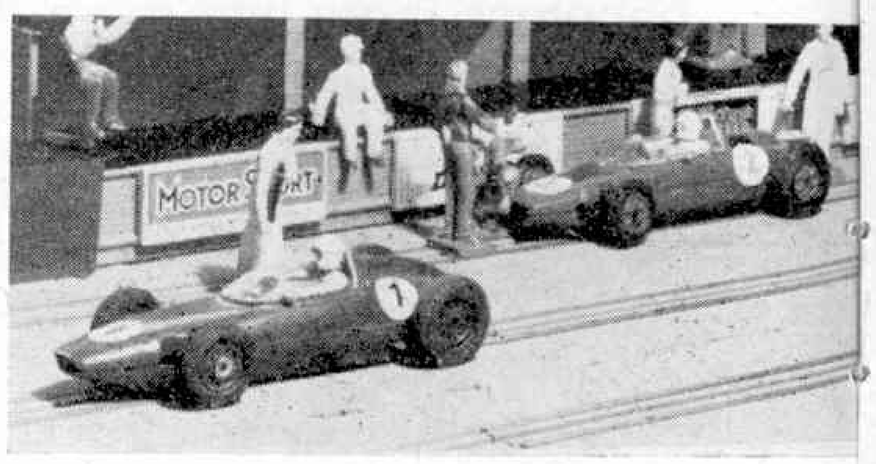




nectors are moulded in with each unit for speed and secure locking. No loose connecting parts required. Inverted metal channel conductor rails with projecting tongue at end to fit into channels of next section.
No. of lanes possible: two, four or six.
Lane clips available for securing adjoining tracks for four- and six-lane circuits. Comprehensive range of track parts.
Cars: Three-pole, 12-v. D.C. crown and pinion drive, braided wire pick-ups. Formula I Lotus, Vanwall, Cooper, Ferrari, B.R.M., Porsche, and Formula II Cooper and Lotus with steering. Competition cars: 'D' type Jaguar and Porsche. Production cars: Aston Martin, Ferrari G.T.O., Austin Healey 3000, Mercedes 190.SL, and in the Autumn a Mini-Cooper. Vintage cars: 1929 Bentley and 1933 Alfa Romeo. There is also a marshall's car not intended for competition, two motorcycles and a Go-Kart. Servicing: Official Scalextric service dealers have been appointed throughout the country.
Sets available: Set No. 30 with Cooper and Lotus F.2 cars, £3.15.0; Set No. 31 Cooper and Lotus F.2 cars, £4.19.11; Set No. 32 Cooper and Lotus F.2 cars, £5.19.11; Set No. 50 B.R.M. and Porsche F.1 cars, £6.17.6; Set No. 50S Austin Healey and Mercedes Sports cars, £7.15.0; Set No. 55 Aston Martin and Ferrari G.T. cars, £8.8.0; Set No. 80, two each B.R.M. and Porsche F.1 cars, £12.12.0. Various two and four-lane circuits.
Accessory packs available.
Trackside Accessories: A most comprehensive range, meeting all requirements. Buildings both ready made and in kit form. Eight sets of figures also available.

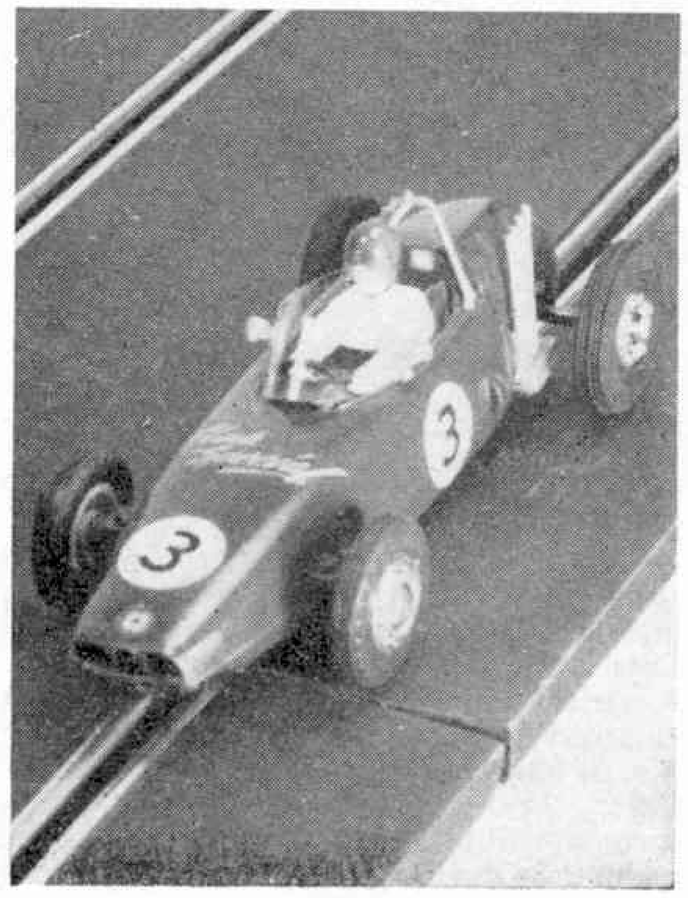
S.R.M.—Scale Raceway Models

Manufacturer: S.R.M. Engineering Ltd.
Scale: 1/40.
Track: Stout grey polystyrene units with 'T' section plated steel pick-up strips. Electrical continuity by phosphor bronze springs. Interlocking claws to connect units.
No. of lanes possible: two, four or six.
Cars: Three-pole disc commutator, 12-v. D.C. crown and pinion drive, braid wire pick-up. Ackerman steering. Range includes: Grand Prix B.R.M., Cooper, Lotus, Ferrari and Mini-Cooper. Choice of colours for each car. Accessories available separately.
Sets available: Set A with G.P. cars, £4.9.6; Set B with Mini cars, £5.19.6. Track for Sets A and B combined make four-lane Figure Eight. No trackside accessories as yet.



V.I.P. 'Club' Raceways

Manufacturer: Victory Industries (Raceways) Ltd.
Scale: 1/32.
Track: (Viptrak) black moulded rubber units with self-aligning lugs and captive clips requiring no loose connecting parts.
No. of lanes possible: two, four or six.
Cars: Three-pole, 12-v., D.C. crown and pinion drive, metal brush pick-up. Ackerman steering. Slot runners have been modified, the leading edge is now fully enclosed giving a more secure grip to the mini-brushes.
Range includes: Super standard F.1: Cooper, Lotus, Ferrari and B.R.M. Sports: M.G.A. and Austin Healey. Club Specials: F.1 Cooper, Lotus, Ferrari and B.R.M. Sports: M.G.A. and Austin Healey. Motors available separately. V.I.P. type C.S.M. (Club Special) with $\frac{3}{32}$ in. diameter rear axle and nylon contrate reduction gear. Comprehensive range of car spares and components including the new 32- and 36-tooth contrate gear wheels. The controller is of the V.I.P. Varispeed prewired for dynamic and power braking.
Sets available: Starter Set No. FR.1100, £5.19.11; Standard Set FR.1700, £7.19.6; FR.1700/Sports, £8.4.6. Trackside accessories include pit mechanics, start/finish banners, flags and flagpoles.



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1964 F.1 Ferrari	10/–	1963 Ferrari 250P ..	12/3
1963 Lotus 25	10/–	Lotus Elite	12/3
1963 F.1 B.R.M.	10/–	'E' type Jaguar.....	12/3

F.1 chassis 'SLIM JIM' 10/–: SPORTS chassis 'POPIN' 10/–. K's Mk. I motor 24/6. Eldi gears 1/9 and 2/3. Spare wheels, tyres, threaded axles, inserts, hub caps, etc. Please include extra for post and packing.



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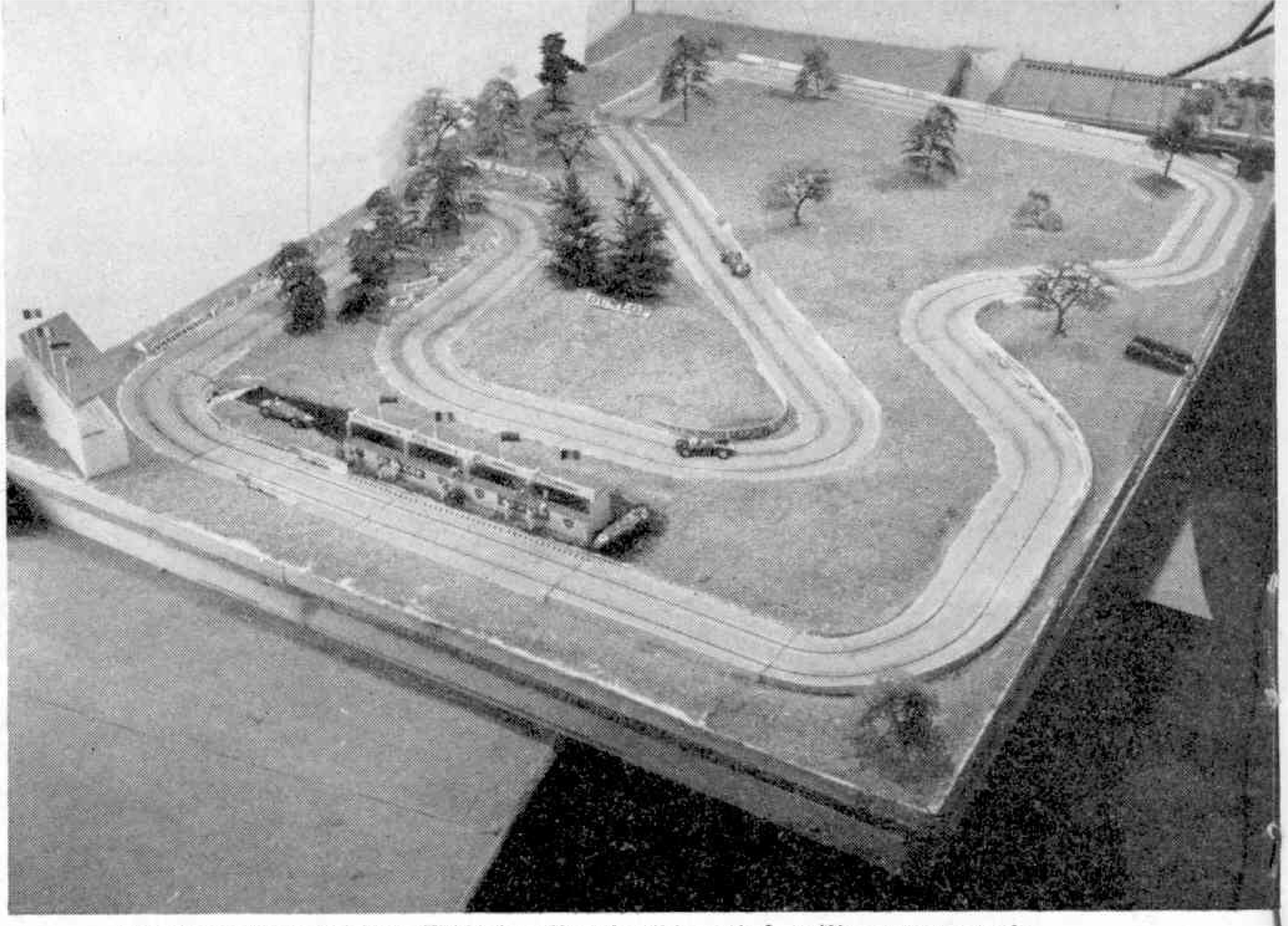
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Brands Hatch in miniature. This interesting circuit is made from Wrenn components

With regard to the choice of scale, ranging from approximately 1/87 up to 1/32, this is indeed a complex question, for in theory the scale should relate to space available—thus limited room, small scale; large area, large scale, but this is not necessarily the complete answer, for while cars made in the smaller scales put up excellent performances and many exciting races have been held using these sizes, there is something about the 1/32 scale that to many enthusiasts makes it the 'right' size for not only does the performance appear to be more realistic, but the average racing modeller can really do things himself in this larger form. Ten to one, once the bug has bitten him with his beginners' outfit, he will want to have a go at making a car himself and 1/32 is by far the best size for those who are inexperienced in this craft.

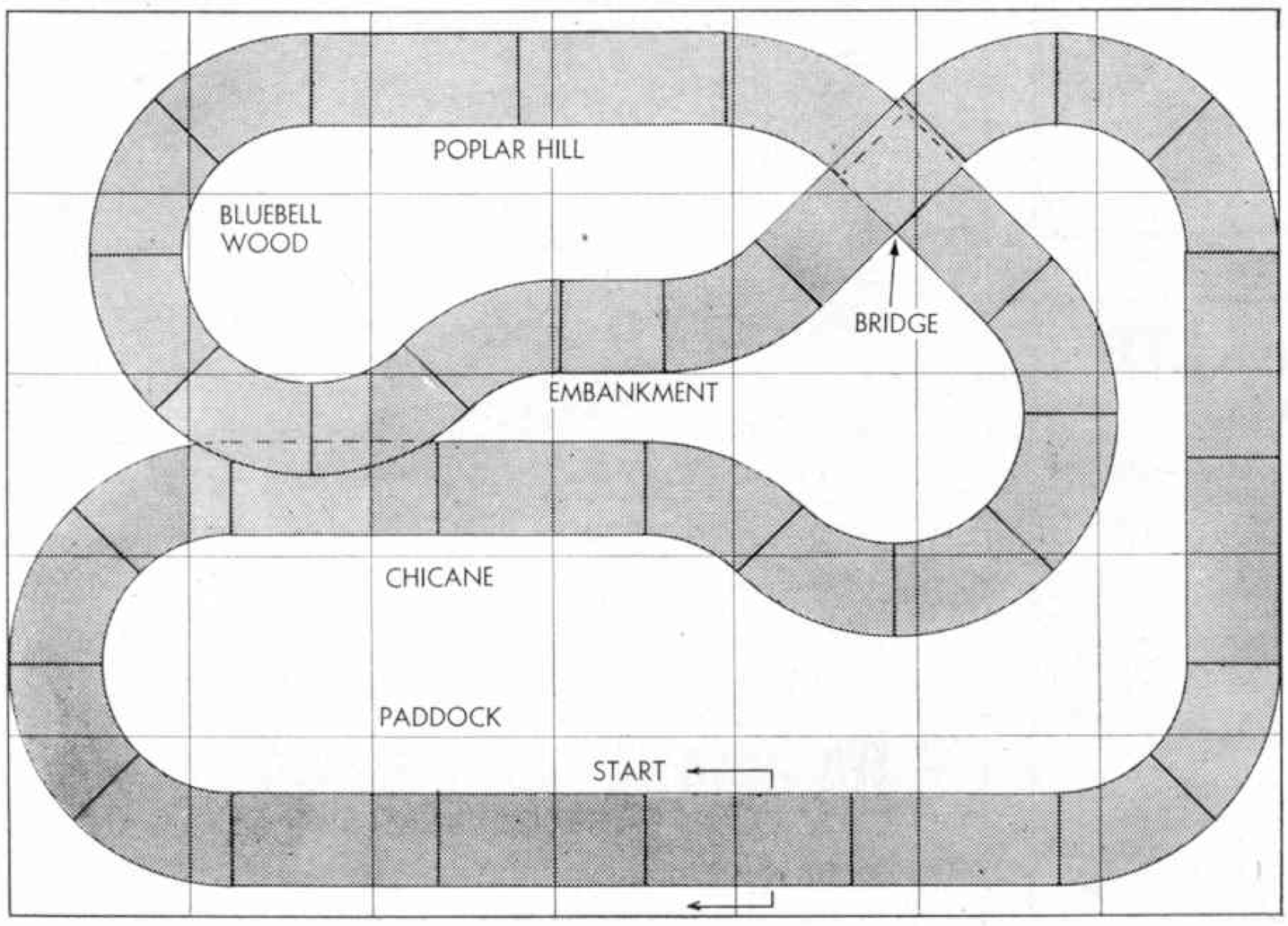
Generally speaking, the answer to this question of scale lies with the individual; if he fancies the larger size and wishes to build cars and at the same time has only a limited space, he will no doubt be prepared to put up with a smaller circuit. On the other hand a person with the same amount of space may wish to lay as much track as possible and will come down in scale to attain maximum lap length in the area allotted. This again does not mean that an interesting 1/32nd circuit cannot be designed in a smaller area. On the other hand if the person concerned is particularly interested in an overall realistic model layout with all the scenic effects as well as the operational side, we turn back again to the smaller scales—and so it goes on.

Design

Probably the first idea for a layout that comes to mind is to build a replica of a real circuit, and this is possible to a degree, but is not entirely satisfactory, because in model form they tend to lack interesting curves which are essential for driving interest. Possibly the exception is Brands Hatch which is quite satisfactory, but generally speaking the best idea is to design your own track from scratch, browsing through various magazines on the subject first to see how the other chap has made his circuit. While doing so, bear in mind the space you have available and make allowances for the number of people who will be attending a meeting, such as visiting drivers, the inevitable marshalls and perhaps one or two spectators. At the design stage it is essential that thought be given to difficult sections of the track being within easy reach of a marshalling position, for nothing is more upsetting than to cause a pile-up of cars right in the middle of an exciting race by not being able to reach one that has gone astray, or to knock everything flying in the process of replacing one car on its course.

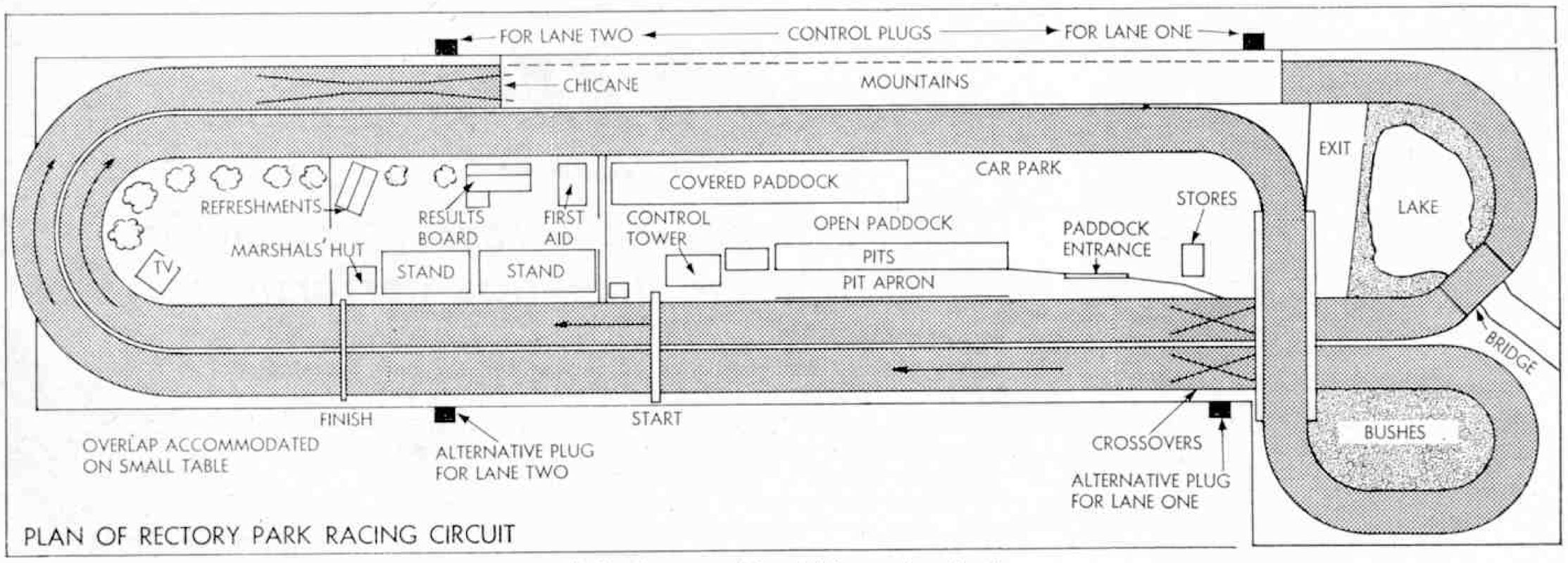
Really there are so many varieties of track design it is impossible to publish them here, but we do show one or two formations of tracks in existence that provide interesting racing. Equal lap lengths for each lane are perhaps ideal but not altogether necessary.

A layout plan for a small 7' × 5' circuit using Scalextric track



Baseboard

The methods of baseboard construction are divided into two categories, one for the various types of home-made track and the second type suited for proprietary equipment with which we are mainly concerned here. Actually, baseboards are not difficult to construct, but care should be taken to cut the ends of the timber square during assembly and to make the finished job rigid. The general idea is to make a substantial framework with 2 in. by 1 in. prepared timber on edge and cover this with Weyroc, Sundeala, ply, hardboard, or wood fibre insulation board—the latter being the lightest in weight and cheapest in price, but it requires more supporting battens than the other sheet materials mentioned, since it is susceptible to slight warping, particularly in dampish surroundings. Therefore approximately



A plan for a complete miniature racing circuit

12 in. spacing of cross members is recommended within the outer shape of the framework as per the accompanying illustration.

Sections of a portable layout can either be bolted together with locating wood blocks to give correct aligning, or by using pin hinges—these are actually brass flap back hinges with the pin removed and replaced by a fairly tight fitting wire bent into an 'L' shape. The hinges are screwed across the join in the normal way, and when the layout is to be dismantled the wires are simply pulled out.

The legs under the baseboard can either be 2 in. by 2 in. timber bolted to the corners of the framework with 1 in. by 1 in. struts or hinged with a pivoted metal strut particularly in the case of portable layouts. The height off the floor should be in the region of 24 in. to 30 in. thus giving the drivers a clear overall view of the circuit.

Track and Wiring

In case of portable layouts it helps matters greatly if track joints correspond with baseboard joints so that when baseboard sections are lined up, the track butts together. Where lugs clip underneath, as is the case with Scalextric, these can either be cut off altogether or just the round ends of the lugs cut off leaving the plastic tongue to locate into the slots of the adjoining section. If you cut the lugs, the metal tags of the contact strip should be left to fit into the channel of the next unit. While this method cannot be solely relied upon to give perfect electrical continuity, these tags do assist in lining up the track, the electrical flow being left really to wires soldered or otherwise attached to each lane on the baseboard sections and simply plugged together with polarised plugs when required for operation. If track joints cannot always be lined up with the base joints, in some cases units can be cut and modified, or on the other hand a loose section can be laid across the join after assembling the base and suitably wired up.

A circuit is always more interesting if it possesses a few undulations, and as the majority of commercial track can be bent up or down—within reason—these can be formed by attaching wood supports of various heights under units, the scenery being built up to hide these later. Fly-overs and banking parts are supplied by some of the manufacturers, but even if these are not obtainable it is a simple matter to cut a strip of insulation board slightly wider than the track and form a fly-over, also to cut

Diagrams illustrating the construction of baseboards and referred to in the text above—Figs. 1 and 2, show the construction of the framework, Fig. 3a shows the method of hingeing the sections together and Fig. 3 shows a hinged leg and one fixed with coach bolts

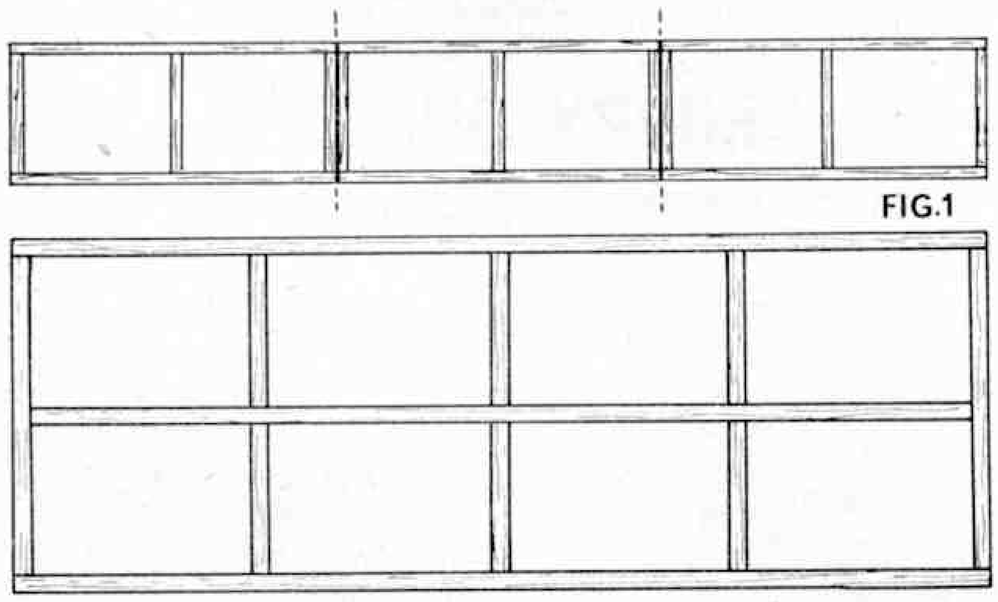


FIG.1

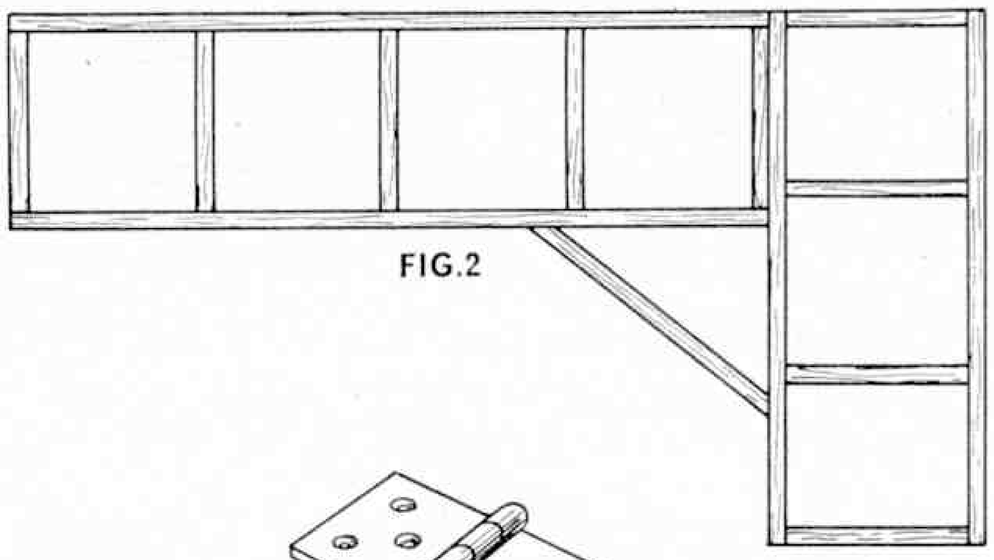


FIG.2

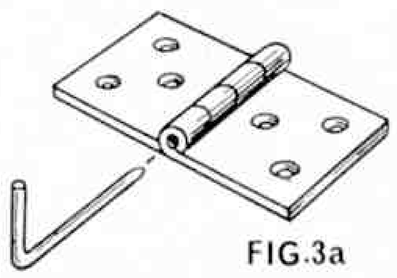


FIG.3a

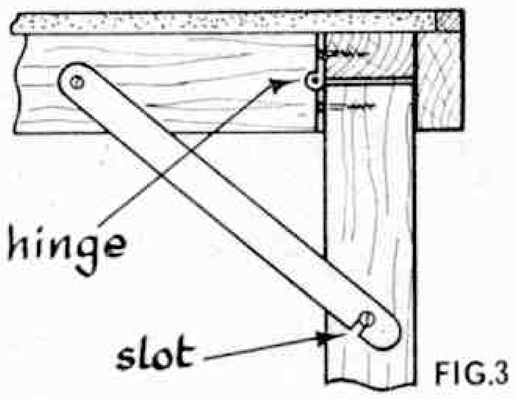
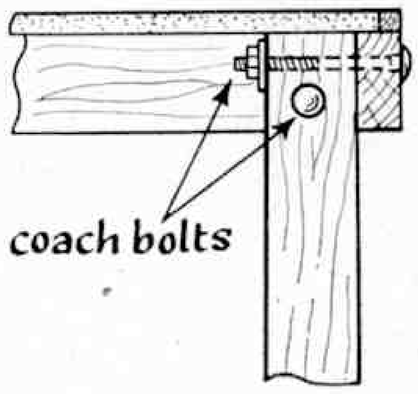
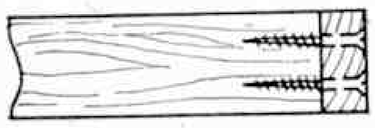


FIG.3





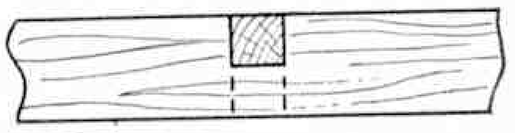
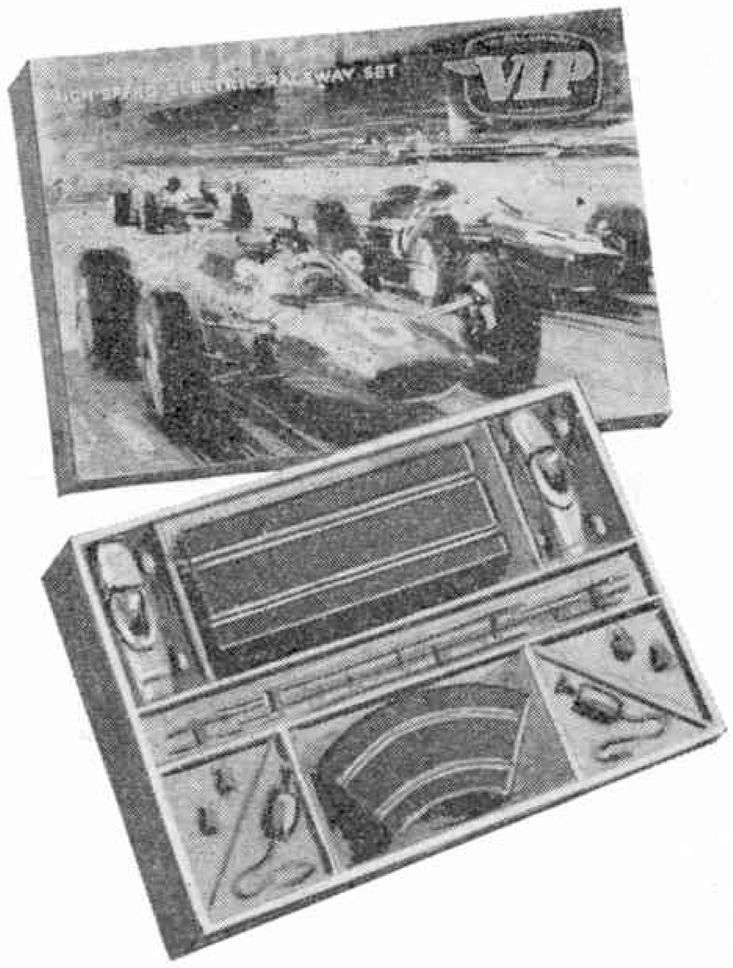


FIG.3b



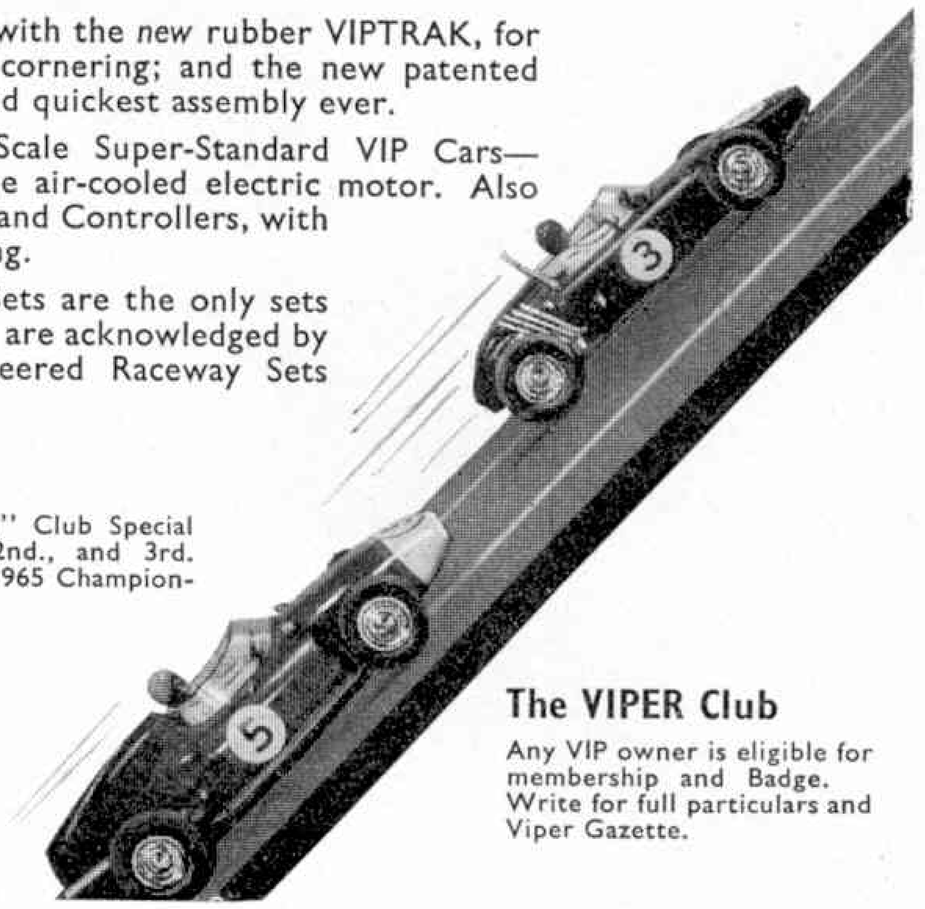
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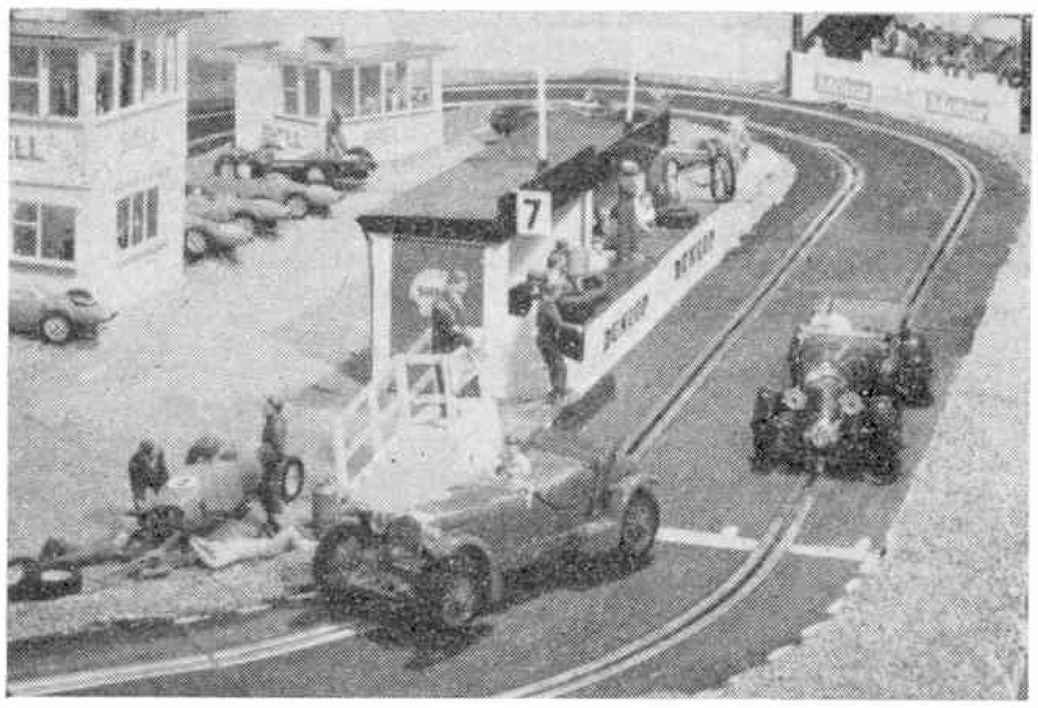
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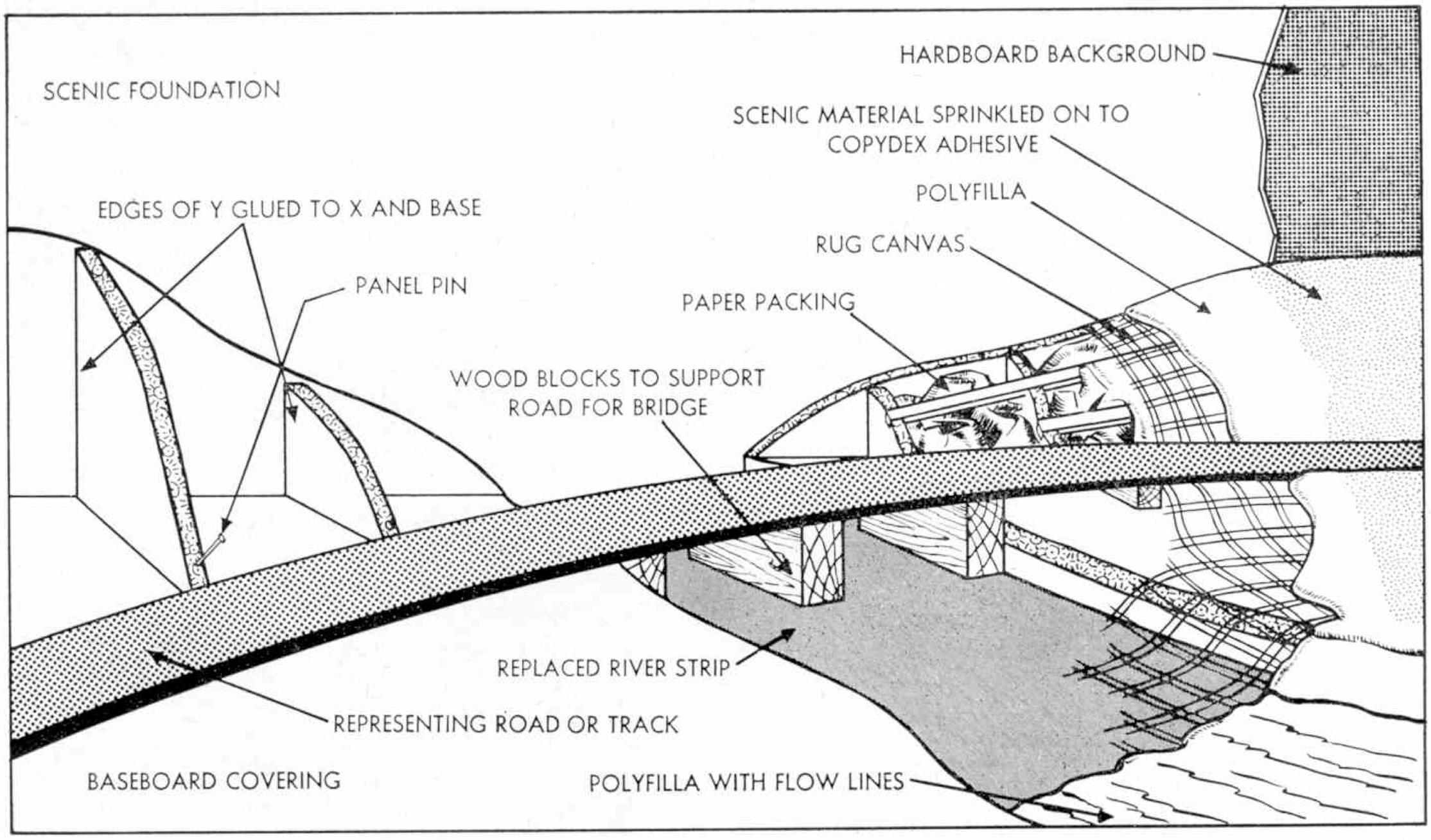
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The method of building up the scenery which is referred to below. When this scene is finished it will represent a high-speed road crossing a river

wedge shapes from scrap timber for banking supports.

As we are dealing with proprietary equipment, the wiring of a circuit is very easy; some makes have special terminal sections while others make it possible to be plugged in under the units, for instance, they can be plugged underneath any of the straight units in the Scalextric and new V.I.P. systems. The wires run along under the base to small two-pin sockets screwed to the control panel which is either detachable or permanently fixed to the base in a suitable position.

Each system has its own type of hand controller and transformer. The two wires from the transformer should be harnessed together; one runs direct, the other, via a hand controller, to a two-pin plug which is of course pushed into the appropriate socket on the control panel —check direction of running! There are methods of braking for cars, but space does not permit a detailed description of this subject.

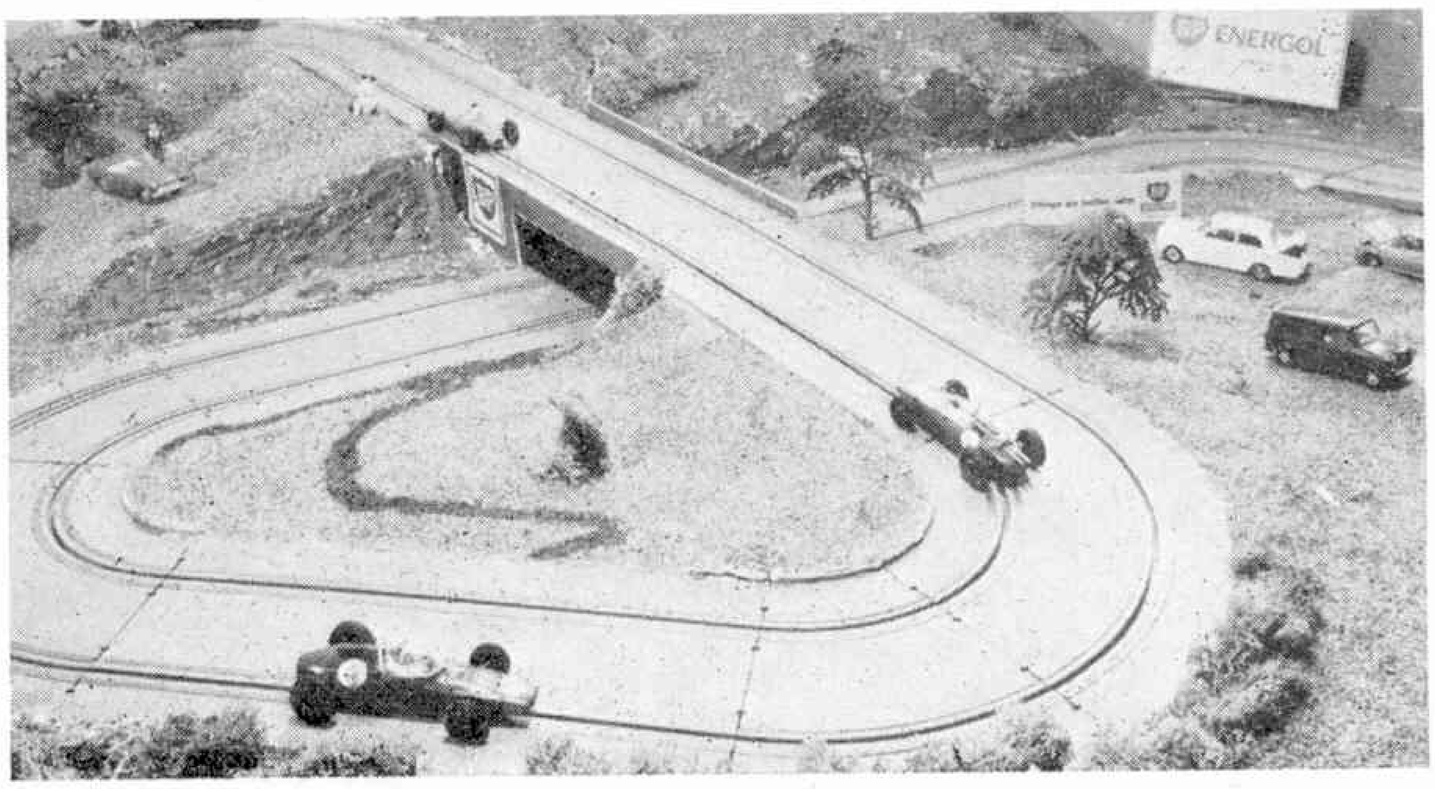
Scenery

Some of the clubs use very little scenery, in fact only the necessary buildings and other trackside accessories, but really even the simplest scenery helps the appearance of a circuit no end, and this, coupled with accessories, figures and a few static cars in approximately the same scale complete the picture giving your model layout a certain busy and realistic atmosphere, but it must be pointed out that the positioning of such items as trees, etc. should be given a little thought in order that they do not get in the way, particularly of the marshalls, and that buildings, hills and other bulky objects do not obstruct the view for the drivers—after all the operation of the racing circuit is of prime importance.

Model scenery construction is a subject requiring a fair amount of space to cover, as there are so many methods depending on how elaborate you wish the finished effect to be and how much you are prepared to spend. However, briefly one well used method which can give superb results is to lay hessian or rug canvas over various areas padded underneath with newspapers, then coat this with Polyfilla, finally coating the plaster after it has dried out thoroughly with a Copydex solution on to which is sprinkled granulated cork ballast or sand, which is afterwards painted the appropriate colours for grass etc., or alternatively one of the dyed scenic materials such as those Dee-Ess or Faller make, the use of these saving the time spent in painting. The Polyfilla can be left in places to represent earth when painted brownish-grey and if applied thickly it can also be carved and scraped with a craft knife to represent rocky faces or outcrops.

Another method of producing scenery is to crumple up old cardboard boxes and paper covering these with many layers of newspaper or sugar paper strips soaked in glue size. When the criss-cross layers have dried out the surface will be quite hard and scenic material can then be applied as before. Lichen makes excellent hedges and Brittain's

A few trees, some static model cars in a similar scale, some road-side signs—and here you have a realistic corner. The cars and track are S.R.M.



trees, although produced with a smaller scale scenic model in mind, can be effectively used on a 1/32 scale layout; after all, what size is a tree? Incidentally, two useful little books that can be bought for 9d. are published by Peco, namely 'Modelling the Landscape' and 'Painting the Background'.

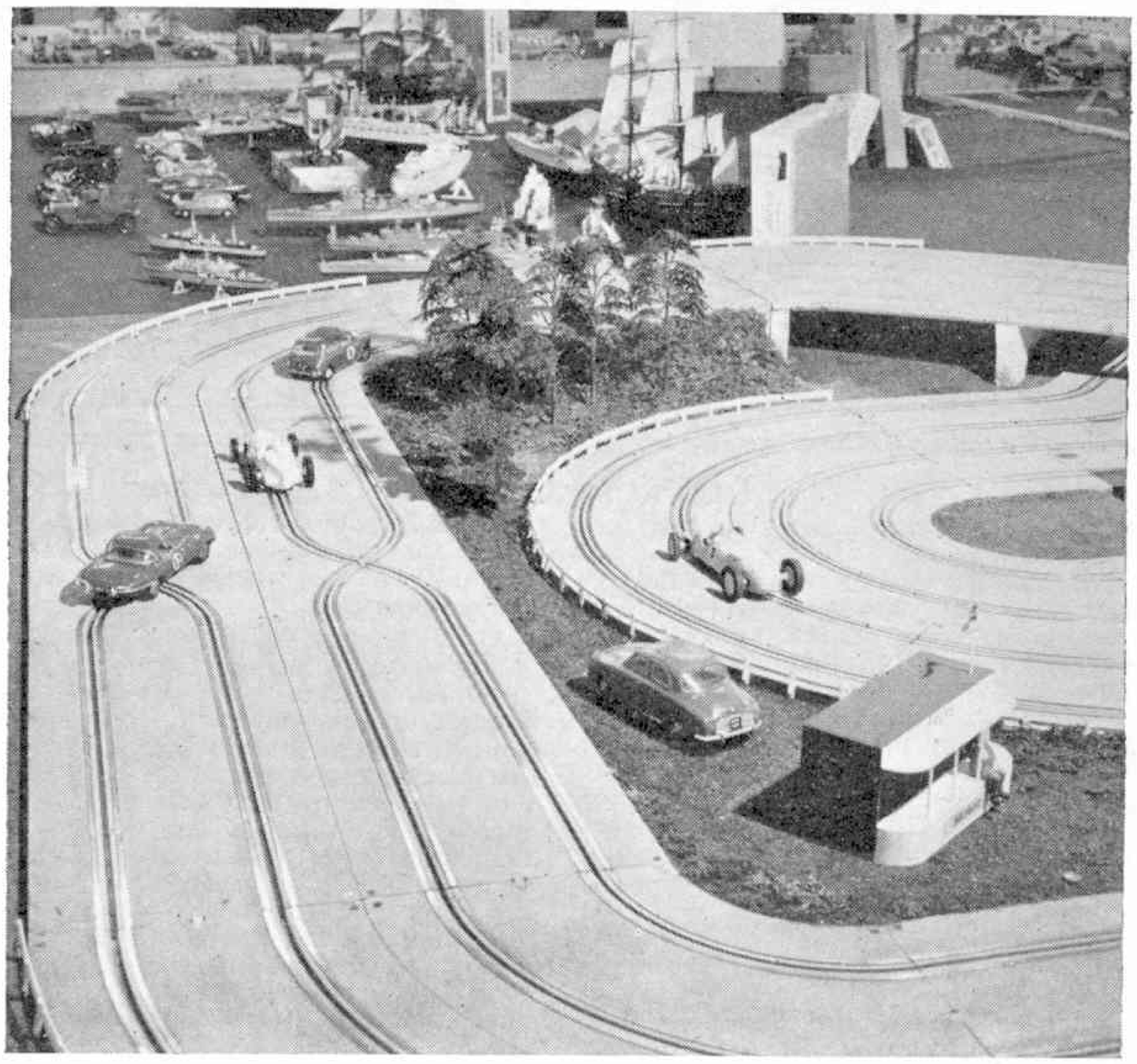
Race Meetings

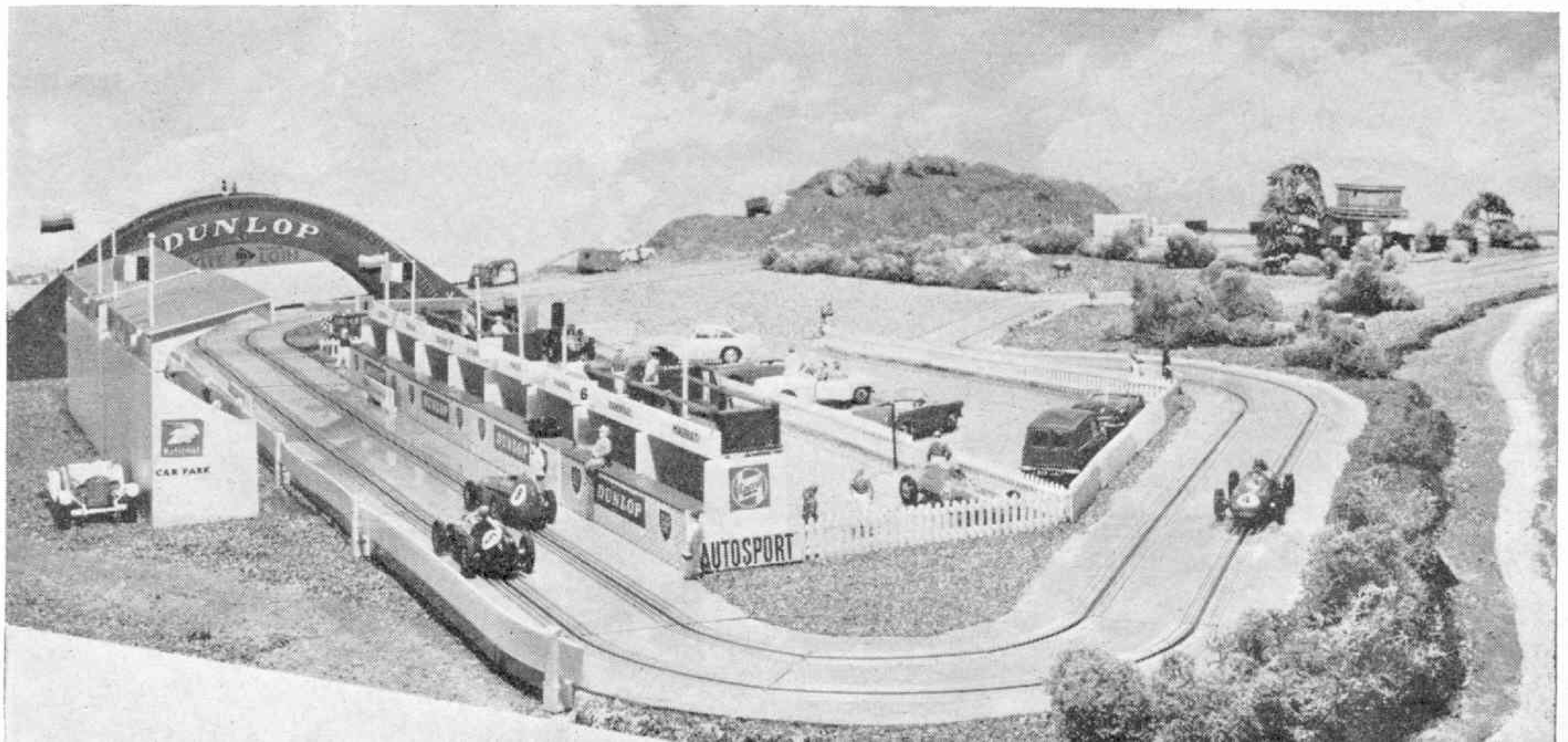
Model car racing is naturally a highly competitive hobby requiring at least three persons present at a meeting, two drivers and another to marshall and tot up the laps even if a type of recorder is used. In some cases a group of enthusiasts share the expenses and form either a private or recognised club, therefore some organisation is really required for racing procedure. There is of course the normal haring round the circuit in a given number of laps, sometimes with pre-arranged pit stops where, for instance, a tyre has to be changed or other ideas dreamed up to make life interesting—sometimes stops are quite unexpected! These types of races are carried out by running a series of heats, depending on how many are competing, leading up to a final. Then there are races set against the clock whereby the winner is the one who has hurled his car round the greater number of laps, say for three minutes, thirty minutes or even six or twelve hours, but for the longer times, teams are arranged to keep the car moving. In each way of racing the various groups of cars must be thought of, such as the Formulas, Saloon, Sports, Vintage, etc. One thing to remember for smooth running is to stick photographer's coloured dots or some other distinguishing mark by each lane, then attach similar marks to the cars according to the lane they will be travelling in, especially for longer circuits and for those with more than two lanes. These colours should be attached to the correct lane at all tricky or marshalling points in order to avoid confusion amongst the marshalls; when a car leaves the slot they can immediately see which lane it belongs to.

It is not always the fastest car that wins for a lot depends on the driver, but practice makes perfect and even if you are not a Jim Clark on the miniature circuit, many hours of enjoyment can be derived from this most fascinating hobby.



Ideally a four-lane circuit should be built if you are going to hold race meetings in a big way. However, a two-lane circuit in Wrenn (very bottom) can be just as exciting, enabling one to run two cars on each track



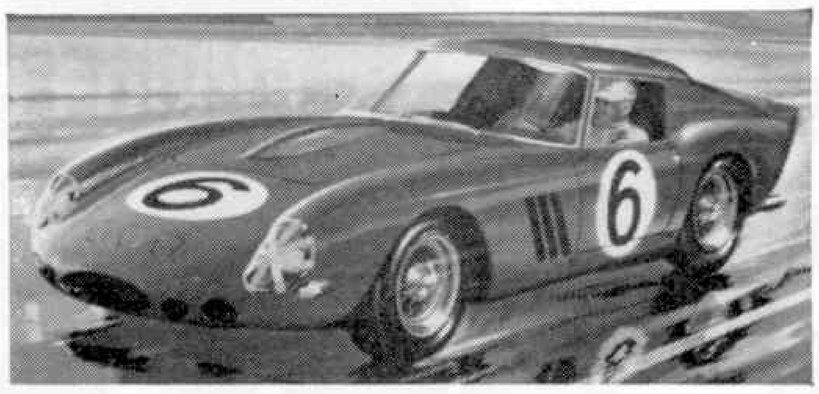


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